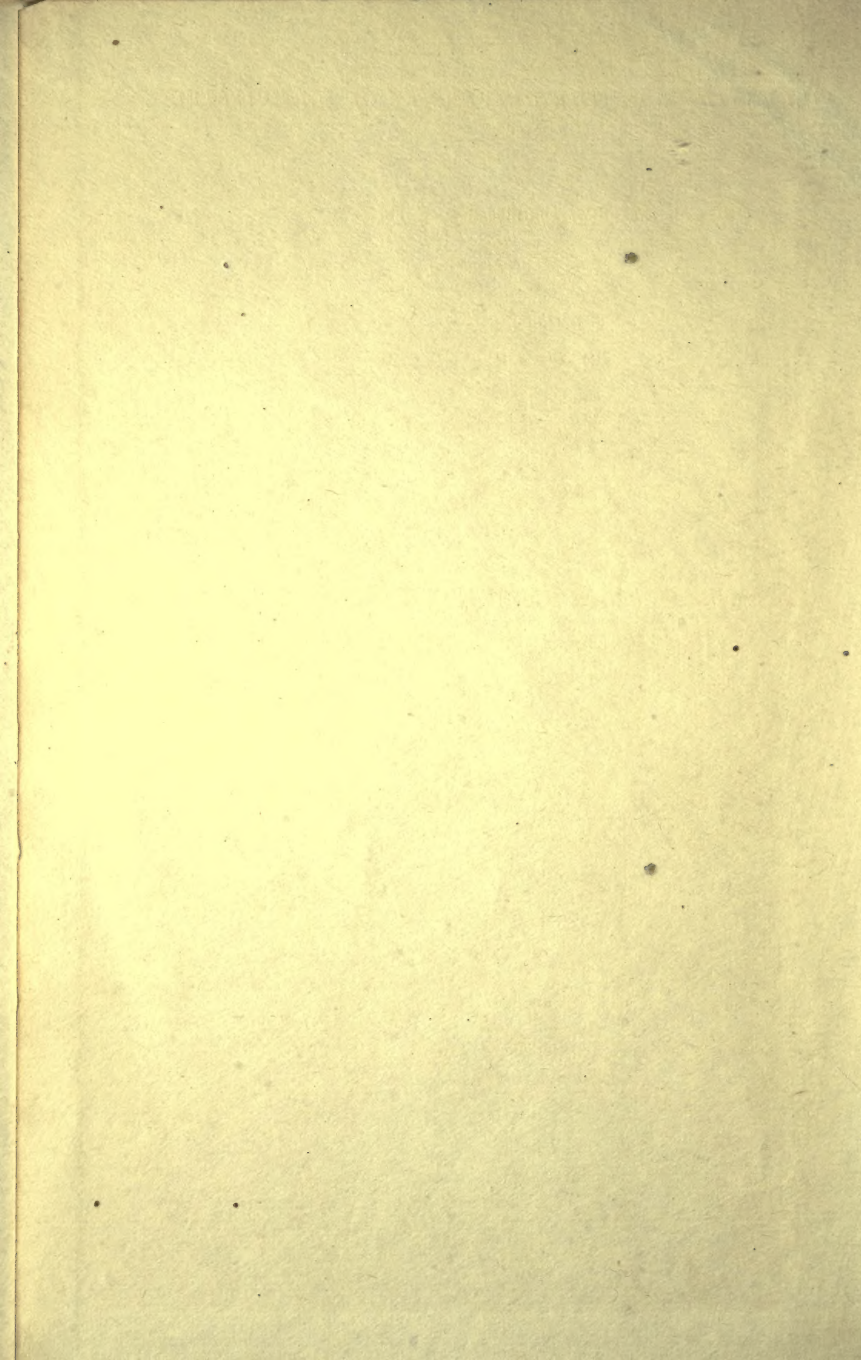




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FEEBLEMINDEDNESS IN
CHILDREN OF SCHOOL-AGE

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PLATE I. Group of Feeble-minded Boys Working at Sandcastle.

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FEEBLEMINDEDNESS IN CHILDREN OF SCHOOL-AGE

BY
C. PAGET LAPAGE, M.D., M.R.C.P.

Lecturer in Diseases of Children to the University of Manchester; Physician to the Manchester Children's Hospital and to the Children's Department of St Mary's Hospital; Member of the Board of Governors, Sandlebridge Colony for the Feeble-minded.

WITH AN APPENDIX ON TREATMENT AND TRAINING

BY
MARY DENDY, M.A.

Commissioner of the Board of Control; late Honorary Secretary to the Sandlebridge Colony for the Permanent Care of the Feeble-minded.

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TO THE MEMORY
OF
HENRY ASHBY



PREFACE TO THE FIRST EDITION

UP to the present time the immense importance to our national welfare of effective methods in dealing with the Feeble-minded has not been generally realised. The report of the Royal Commission on the Care and Control of the Feeble-minded, published in 1908, has, however, served as a stimulus, so that, latterly, there has been a large amount of interest taken in the subject. This has rendered necessary the provision of a book suitable for school medical officers and also for teachers or social workers who have to deal with feeble-minded children.

The further objects of this book are (1) To emphasise the importance of the subject of mental deficiency and of the prominent place that efficient care of feeble-minded persons should take in the measures for the welfare of the community.

(2) To point out that feeble-mindedness is an inherited taint handed on from generation to generation, and that every feeble-minded person, who is a free and unrestrained agent, may, by becoming a parent, transmit that taint and so affect tens or hundreds in future generations.

(3) To demonstrate that the only way to deal effectively with the problem is to provide suitable supervision and care, which will last during the whole lifetime of the feeble-minded individual, and to show how such care may best be administered.

I wish to express my great indebtedness to Miss Dendy for her help and advice, and for the material which she has placed at my disposal. Her appendix on the

1. The first part of the paper is devoted to a general
discussion of the various methods of determining the
value of the constant k in the equation $y = kx^2$. It is
shown that the method of least squares is the most
accurate, and that the method of moments is the most
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CONTENTS

CHAPTER	PAGE
I. INTRODUCTORY AND STATISTICAL . . .	1
II. PRESENT METHODS OF DEALING WITH THE MENTALLY DEFECTIVE	23
III. PHYSICAL CHARACTERISTICS	55
IV. MENTAL CHARACTERISTICS	70
V. DEFECTS OF SPEECH	89
VI. SPECIAL TYPES	99
VII. DIAGNOSIS	115
VIII. PROGNOSIS	134
IX. TREATMENT AND CARE	145
X. THE CELL, REPRODUCTION, AND HEREDITY	161
XI. THE CONDITION OF THE BRAIN IN FEEBLE- MINDEDNESS	167
XII. THE CAUSATION OF FEEBLEMINDEDNESS— INHERITED FACTORS	178
XIII. THE CAUSATION OF FEEBLEMINDEDNESS— ACQUIRED FACTORS	189
XIV. PREVENTATIVE MEASURES AND GENERAL CONSIDERATIONS	197

I. ON THE TRAINING AND TREATMENT OF FEEBLEMINDED CHILDREN. WRITTEN BY MARY DENDY, M.A.	207
II. THE DETAILED EXAMINATION OF THE HEAD	246
III. THE DETAILED EXAMINATION OF THE SPEECH	250
IV. THE BINET-SIMON TESTS OF MENTAL INTEL- LIGENCE	253
V. FORMS AND CERTIFICATES SUITABLE FOR USE WHEN EXAMINING A CHILD SENT UP FOR ADMISSION TO AN INSTITUTION FOR FEEBLE- MINDED CHILDREN	255
VI. LIST OF HOMES, SCHOOLS AND INSTITUTIONS	259
VII. PLANS AND DESCRIPTION OF AN ECONOMICAL HOUSE SUITABLE FOR FEEBLEMINDED CHILDREN	270
BIBLIOGRAPHY	275
GLOSSARY	288
INDEX	288

LIST OF ILLUSTRATIONS

PLATE

I. GROUP OF FEEBLEMINDED BOYS WORKING AT SANDLEBRIDGE	<i>Frontispiece</i>
	TO EACH PAGE
II. FEEBLEMINDED CHILDREN OF THE ORDINARY TYPE	57
III. TRACINGS TO SHOW ABNORMALITIES IN THE SHAPE OF THE HEAD AS FOUND IN THE FEEBLEMINDED	<i>on page</i> 60
IV. ABNORMALITIES OF THE EXTERNAL EAR	61
V. DEFECTIVE EXPRESSIONS	67
VI. DIAGRAM TO SHOW PATHS AND CENTRES THAT HAVE TO DO WITH SPEAKING, READING AND WRITING	<i>on page</i> 73
VII. CRETINISM	99
VIII. SLIGHTER MONGOLIAN TYPES	103
IX. MICROCEPHALIC, HYDROCEPHALIC AND MORALLY DEFECTIVE TYPES	108
X. PARALYTIC (HEMIPLEGIC) TYPES. ATHETOID MOVEMENTS	110
XI. THREE BROTHERS AND A BROTHER AND SISTER, ALL FEEBLEMINDED	201

	TO	PAGE	PAGE
XII. MODELS USED IN TRAINING THE SENSES OF SIGHT, COLOUR, FORM AND BALANCE . . .		228	
XIII. PHOTOGRAPH OF WYATT HOUSE . . .		245	
XIV. PLANS OF BUILDING SUITABLE FOR A RESIDEN- TIAL SCHOOL		270	

LIST OF TABLES

TABLE	PAGE
I. THE COMPARATIVE FREQUENCY OF THE TYPES OF FEEBLEMINDEDNESS	57
II. COMPARISON OF THE HEIGHTS, WEIGHTS AND HEAD MEASUREMENTS OF FEEBLEMINDED AND ORDINARY SCHOOL CHILDREN	66
III. COMPARISON OF THE AGE OF LEARNING TO WALK AND TALK AND THE DEGREE OF MENTAL DEFECT	88
IV. THE PHYSIOLOGICAL ALPHABET (WYLLIE)	94
V. RESULTS OF THE DETAILED EXAMINATION OF THE HEADS OF ORDINARY CHILDREN AND FEEBLE- MINDED CHILDREN OF SCHOOL-AGE COMPARED	249
VI. TABLE OF WORDS SUITABLE FOR MAKING THE CHILD PRONOUNCE THE VARIOUS CONSONANTS	251
VII. TABLE ILLUSTRATING FREQUENCY OF SUBSTITU- TION	252

DIAGRAMS

DIAGRAM I. SHOWING THE PERIODS OF LIFE AFTER CONCEPTION	168
DIAGRAM II. SHOWING INHERITANCE OF FEEBLE- MINDEDNESS	facing page 186

CHAPTER I

INTRODUCTORY AND STATISTICAL

History.—In 1904 it was thought necessary to appoint a Royal Commission on the Care and Control of the Feeble-minded, and as a result of their report, the Mental Deficiency Act was passed on August 15, 1913. Thus was reached the culmination of the efforts which had been going on in various quarters to promote the welfare of the mentally deficient. The pioneer work of Seguin, Itard, Howe, Wilbur and others in distinguishing the treatment and care of "idiots" from that of "lunatics" has been described in other text-books; here we shall deal chiefly with the history of the movement in England.

In the past the words "lunatic" and "idiot" have stood for two divisions of mentally deficient persons, the one implying "disorder of the mind in a person who has been in possession of his faculties," and the other "a state of mental incapacity, which has been present from birth or from an early age." The Lunacy Acts included under their jurisdiction both lunatics and idiots, but the Idiots Act of 1886 (since repealed, 1913), dealt with idiots apart from lunatics, and by the use of the word imbecile, as referring to mental defect of a lesser degree than idiocy, recognised a sub-class of the mentally defective. Later a further sub-class of still higher mental power, the feeble-minded, was recognised.

Most people are familiar with the type known as the "village idiot," and anyone who has to deal with such

persons will know how helpless they are; how often they form the butt of gibes and jests, how they can be goaded to fits of passionate and uncontrollable rage during which they may commit acts of violence, and finally how subservient they are to the will and suggestion of others. Such persons were obviously in need of care and help; but in spite of the fact that much attention had been devoted to lunatics, it is only comparatively recently that any other than the idiots with the lowest grade of intellect have been generally recognised as being in want of care. The existence of a very large number of persons who, though certainly of too low a mental level to look after themselves without assistance, are still of a higher level than idiots, had in the past only been partially recognised, and though various more or less isolated attempts had been made to care for special classes of the weak-minded no comprehensive scheme had been adopted. The great majority of such persons had been dealt with by various authorities such as the poor-law, the prisons, the inebriate homes, and the education authorities, according to whether they were destitute, habitual criminals, drunkards or too deficient to benefit from instruction in the ordinary schools, as the case may have been. Obviously it was wrong to make it impossible for them to come under care until they had committed an offence of some sort, and it is better to take them under care and prevent such offences.

Past efforts at care.—In the attempts that have been made to deal with this class of mental deficiency we can trace several distinct movements. First, there was the establishment of the institutions known as the idiot asylums, which were founded at a time when idiocy was thought to be more or less curable, and the importance of lifelong care had not been realised.

To quote the Commissioners :—

In general we may say that the object of the asylums is

primarily educational, and that, originally at least, they were the outcome of a belief that in many cases special education would prepare "for the duties and enjoyments of life" the children or young persons, who gained admission to them.

Since the regulations of the asylums included the discharge of pupils after a period varying from four to seven years, it is evident that lifelong care formed no part of the original idea of their founders.

The first idiot asylum, Earlswood, was founded in 1847, but a small school had been established at Bath in 1846, and this became the Magdalen Hospital School. Other idiot asylums were established later, the Eastern Counties at Colchester in 1859, the Western Counties at Starcross in 1864, the Royal Albert at Lancaster in 1864, and the Midland Counties at Knowle in 1868. In all, these institutions provided accommodation for about 1,900 cases. To these must be added the important colony at Darenth, under the Metropolitan Asylums Board. But it should be pointed out that until a few years ago when they changed their names to "Training Schools for the Feeble-minded," these asylums, except Starcross, were largely devoted to the care of the lower grade cases.

Secondly, taking the Poor Law Authorities, the Commissioners showed that, though the Guardians had had permissive powers of making provision for the mentally defective class, they had not evolved any suitable scheme of dealing with such persons on the ground of their mental condition, but had treated them rather on the ground of their pauperism and need of relief, the mentally defective being then kindly looked after but maintained rather than treated, and no attempt being made to separate the various grades. The evidence on this point is, as the Commissioners say, "quite conclusive" :—

It comes almost entirely from persons who as Inspectors . . . or as Guardians are thoroughly familiar with the facts, and it relates practically to the whole country. There are special

4 INTRODUCTORY AND STATISTICAL

arrangements here and there . . . but it is admitted that, as a whole, the accommodation now provided for these persons is insufficient, unsuitable and unsatisfactory. It is not asserted that they are treated with unkindness . . . nor are the Poor Law Guardians throughout the country to blame. The system of indoor relief is merely a housing system and . . . there has sprung up a demand for a more discriminating and individual treatment of mentally defective persons. . . .

The practice of giving outdoor relief or of boarding-out such cases has also had very bad results in England and is undesirable for many reasons. Its limitations will be discussed later.

The Guardians have had power to make use of other institutions, and to pay for the maintenance of the mentally defective there; in some instances, especially after the report of the Commission, they did avail themselves of this power, but not nearly to a sufficient extent.

Thirdly, taking the Education Authorities, the Education Act of 1870 gave the school boards the duty of dealing with all educable children, and the establishment of schools for the *physically* defective soon followed (1872). The Royal Commission on the Blind, Deaf and Dumb (1889) recommended that every parent should cause his or her child "to receive instruction suitable to it," and that "with regard to feeble-minded children, they should be separated from ordinary public scholars in public elementary schools in order that they may receive special instruction and that the attention of school authorities be particularly directed towards that object." The later recommendation arose from the evidence of several witnesses, especially Drs. Shuttleworth and Warner, with regard to those children defective in sight, hearing, and speech because they were mentally deficient. London and seven provincial towns* established such schools, but the cost was a very heavy charge on local expenditure, when unsupported by a

* Towns that first established special schools for feeble-minded children are Birmingham, Bradford, Bristol, Leicester, Liverpool, London, Manchester, Oldham and Salford, Leicester being the first of all.

Government grant, and representations were made for special legislation in favour of feeble-minded children. General F. J. Moberly, who was then Chairman of the Sub-Committee of the London County Council Schools for the physically defective, gave evidence before this Commission and later became the Chairman of the Sub-Committee in charge of the Special Schools for the Mentally Defective.

In 1876-77 a Special Committee of the Charity Organisation Society of London reported on the education and care of idiots, imbeciles, and harmless lunatics, estimating their number at 49,041, and recommending the establishment of schools and asylums in every large centre or group of counties.

Again in 1890 the same Society appointed a special committee to consider and report on "the public and charitable provision made for the care and training of the feeble-minded, epileptic, deformed, and crippled." This Committee issued in 1891 an interim, and in 1892 a final report, which embodied the results of an examination of a very large number of school children by Dr. Francis Warner and others, who found that approximately 1 per cent. of the children examined required special care and training.

In 1898 the Elementary Education (Blind and Deaf Children) Act was passed, and by it the teaching of blind and deaf children became compulsory. In 1895 a Committee under the auspices of the British Medical Association, the Charity Organisation Society of London, the British Association for the Advancement of Science, the International Congress of Hygiene and Demography, and other public bodies issued "A Report on the Scientific Study of the Mental and Physical Conditions of Childhood with particular reference to Defective Children" from the Parke's Museum, Margaret Street, W.*

* See Shuttleworth and Potts, *Mentally Deficient Children*.

Manchester School Board, and Dr. Ashby examined and reported on 500 mentally defective children selected by her from 39,600 scholars.

This examination, entailing as it did a questioning of the parents, only served to emphasise the point that, valuable as special day schools may be, the work done in them must be largely wasted and nullified if the children are discharged at the age of sixteen, the most critical period of their lives, to become in many instances the parents of children similar to themselves. Miss Dendy's efforts led to the foundation of the above society, to which she was for fifteen years Honorary Secretary, and which has now attained important dimensions. The late Mr. C. H. Wyatt, when Director of Elementary Education in Manchester, did a great deal to aid the work of the Society. The whole policy of this Society is based on the fact that only lifelong care of the feeble-minded is satisfactory, and the success of its colony at Sandlebridge demonstrates the feasibility and value of this method of caring for the persons of weak mind. There is no doubt that the colony school system with lifelong care is by far the most satisfactory, and wherever possible it should be adopted for all grades of cases. Nobody who is familiar with the problem, and also with the results of a colony such as that at Sandlebridge, can have the least doubt on this point.

Royal Commission.—In April, 1903, a petition signed by some 140 influential persons especially interested in the subject, was sent to the Home Secretary pleading for the appointment of a Royal Commission “to consider and report upon the existing provision for Idiots, Imbeciles, and the Defective or Feeble-minded, and to make recommendations.” This led up to the appointment in 1904 of the Royal Commission on the Care and Control of the Feeble-minded.

The Marquis of Bath was first appointed Chairman of the Commission, but he resigned and the Earl of Radnor

was appointed in his place. The other members were (2) W. P. Byrne, Esq., Principal Clerk to the Home Office; (3) C. E. H. Chadwick-Healey, Esq., K.C.; (4) C. E. H. Hobhouse, Esq., M.P.; (5) F. Needham, Esq., M.D., Commissioner in Lunacy; (6) H. B. Donkin, Esq., M.D.; (7) J. C. Dunlop, Esq., M.D.; (8) H. D. Greene, Esq., M.D.; (9) The Rev. H. N. Burden, Manager of Bentry and other Inebriate Reformatories; (10) W. H. Dickenson, Esq., M.P., Chairman of the National Association for promoting the welfare of the Feeble-minded; (11) C. S. Loch, Esq., Secretary to the Charity Organisation Society; (12) Mrs Hume Pinsent, Chairman of the Special Schools Sub-Committee of the Birmingham Education Committee.

Their report consisted of eight volumes; volumes one to four being minutes of evidence, volume five appendix papers, volume six the reports of the medical investigators, volume seven the report on the visit of certain of the Commissioners to America, and volume eight the Report Volume. The report was issued in August, 1908, and served to correlate and focus the knowledge on the subject, to bring forward much fresh evidence, and to bring out prominently the urgent need of a comprehensive scheme for dealing with the feeble-minded.

The Commissioners were at first directed to consider the methods of dealing with idiots, epileptics, imbecile, feeble-minded, or defective persons not certified under the Lunacy Laws, but later the scope of the enquiry widened, and they were also directed to enquire into the Lunacy Laws with a view to the suggestion of some scheme that would provide care for all persons of deficient intellect whether they were lunatics, demented, idiots, imbeciles, epileptics, or feeble-minded. The Commissioners examined 248 witnesses, obtained information from foreign countries, and visited American institutions. At the outset it was found that there were no available statistics; medical investigators were,

therefore, appointed in various districts, their duties being to examine the following groups of persons :—

- (1) Children in Public Elementary Schools.
- (2) Children and Adults in Poor Law Institutions.
- (3) Children and Adults in receipt of Outdoor Relief.
- (4) Persons known to Sanitary Authorities.
- (5) Persons relieved by Medical Charities.
- (6) Persons known to General Practitioners.
- (7) Children and Adults in various Charitable Institutions and Common Lodging Houses, Training Homes, and Reformatories and Industrial Schools.
- (8) Persons to be heard of from other sources.
- (9) Known to the Police.
- (10) Idiots of the District in Idiot Asylums.
- (11) Inmates of Prisons.
- (12) Inmates of Inebriate Homes.

As a result of this report, the Mental Deficiency Act of 1913 was passed. But before discussing its provisions and effects, it is advisable to examine some further facts and figures brought out by the evidence given before the Royal Commission.

Classification and Definitions.—Strictly speaking the term Mental Deficiency includes all persons of unsound mind, and such persons can be divided into two classes :—

(1) Lunatics,* demented, or insane persons who from disorder of the mind or from a decay of their mental faculties have lost the power of managing themselves or their affairs.

(2) Imbeciles, or persons who, because their brain is incapable of normal development, have never had and never will have the power of managing themselves or their affairs.

There has been and still is a tendency to limit the term Mental Defect to Imbeciles as distinguished from Demented. In this book we shall use the term mentally

* There is in many quarters to-day a strong demand that the word lunatic shall be abolished. It is not agreed as to what term shall be substituted for it. As a matter of fact, it is little used by the Authorities, excepting in legal documents.

defective in reference to class (2), the aments, the terms idiot, imbecile, and feeble-minded and moral imbecile being used to designate various grades. We shall dismiss class (1), or lunatics, with the two remarks that the Commissioners recommend that the words "lunatic" and "asylums" should be superseded and those of "persons of unsound mind" and "hospital" substituted, and that it is entirely undesirable that lunatics should be treated in the same institutions as the mentally defective.

Of the three grades of aments or mentally defective persons the feeble-minded are intellectually the highest, the idiots the lowest, and the imbeciles intermediate.

Definitions.—The definitions of the three grades adopted by the Act are :—

(a) *Idiots*—that is to say, persons so deeply defective in mind from birth or from an early age as to be unable to guard themselves against common physical dangers.

(b) *Imbeciles*—that is to say, persons in whose case there exists from birth or from an early age mental defectiveness not amounting to idiocy, yet so pronounced that they are incapable of managing themselves or their affairs, or, in the case of children, of being taught to do so.

(c) *Feeble-minded persons*—that is to say, persons in whose case there exists from birth or from an early age mental defectiveness not amounting to imbecility, yet so pronounced that they require care, supervision, and control for their own protection or for the protection of others, or, in the case of children, that they by reason of such defectiveness appear to be permanently incapable of receiving proper benefit from the instruction in ordinary schools. Dr Goddard has suggested the name "Moron" for this type of mentally defective person.

(d) *Moral Imbeciles**—that is to say, persons who from an early age display some permanent † mental defect coupled with strong vicious or criminal propensities on which punishment has had little or no deterrent effect.

These definitions emphasise the lifelong and incurable character of the mental affliction, and distinguish it from (1) temporary mental affections, and (2) from backwardness or retarded mental development, which is due to

* Imbecile is not a good word. † Lifelong is a better word.

adverse factors in infancy and childhood. Temporary insanity may be cured and a backward child may be brought up to the normal level by suitable treatment, but a mentally deficient child, though amenable to treatment and training to some extent, can never be rendered normal.

Causation.—When dealing with the causation of mental defect, the Commissioners found that twenty-five out of thirty-five witnesses attached supreme importance to the fact that, in a very large proportion of the cases of mental defect, there is a history of mental defect in the parents or near ancestors. The twenty-five witnesses, who held this opinion, had all had a very large experience, and had devoted special attention to the subject. Sir Clifford Allbutt said :—

I regard feeble-mindedness (if not accidental) as always hereditary, or in other words it is a ratio of variation. I have never met with a case of manufactured feeble-mindedness apart from some accident at birth or afterwards. . . . I attach great weight to inheritance. . . . Feeble-minded persons are prolific; the thing can only be bred out.

The late Dr. Ashby, Medical Officer to the Special Schools at Manchester, said :—

In at least 75 per cent. of the children with amentia that I have examined there was a strong probability that the amentia was hereditary and primary (*i.e.*, spontaneous, not due to external influences). He further says that he has observed no special tendency in the children of alcoholics or of women who suffer privation during pregnancy or in those children who live in unfavourable conditions subsequent to birth, to develop amentia. The term "Amentia" is here used to cover all grades of mental defect in early life.

Dr. Bevan Lewis said :—

There is not the least doubt of it in my mind. I look upon feeble-mindedness as a germinal variation just as all "variations" are.

Dr. Tredgold found evidence of a neuropathic inheritance in 80 per cent. of his cases.

Mr. Frederic Wilkinson, Director of Education, Bolton

Education Committee, gave evidence to the effect that in almost every case where parents of mentally defective children appeared before the Committee or before magistrates, it was found that the parents themselves were similarly affected.

In support of the importance of heredity in the causation of feeble-mindedness were the facts that a large majority of "experienced witnesses" held this view as did "numerous observant individuals other than medical who visit the homes of the feeble-minded," and "the almost overwhelming probability from the biological standpoint of this view being true." Professor Sir E. Ray Lankester held :—

that congenital feeble-mindedness is spontaneous originally and truly hereditary subsequently and is not brought about by starvation and other such conditions: it is more probably due to easy conditions of life and the absence of the selection that obtains amongst more primitive men.

Dr. Archdall Reid expresses the opinion that the great majority of the cases of feeble-mindedness are innate and tend to be inherited.

With regard to the fertility of mentally deficient persons, the Commissioners quote the evidence of "their medical investigators and of Miss Dendy, a very experienced witness," to show that in spite of the fact that there is a large mortality in the children born to mentally deficient persons, they tend to have large families.

On the other hand it is only fair to quote Dr. Mercier's evidence, which was :—

clear and consecutive and amounts to the conclusion that, not only is the frequent transmission of feeble-mindedness by inheritance not proved, but, also, that the organic defect of brain which underlies feeble-mindedness may be often the result of external influences which during childhood affect the growth of the brain injuriously.

In conclusion, the Commissioners summed up :—

1. That both on the grounds of fact and of theory there is the highest degree of probability that "feeble-mindedness" is usu-

ally spontaneous in origin—that is, not due to influences acting on the parent—and tends strongly to be inherited.

2. That, especially in view of the evidence concerning fertility, the prevention of mentally defective persons from becoming parents would tend largely to diminish the number of such persons in the population.

3. That the evidence for the conclusion strongly supports measures, which on other grounds are of pressing importance, for placing mentally defective persons, men and women, who are living at large and uncontrolled, in institutions where they will be employed and detained; and in this, and in other ways, kept under effectual supervision so long as may be necessary.

They added that, in their opinion :—

the general feeling of the people would at present rightly condemn any legislation directed chiefly or exclusively to the prevention of hereditary transmission of mental defects by surgical or other artificial measures. The possibility of adopting such measures having been referred to by twenty-one of the witnesses but only recommended by three.

Proportion of the Feeble-minded to the General Population.—The statistics given on pages 192 and 193 of the Commissioners' report are very striking. Apart from lunatics (or, as the Commissioners recommend they should be called, "persons of unsound mind") at least one in 217 or 0.46 per cent. of the population is mentally defective, *i.e.*, is either idiot, imbecile, feeble-minded, or a moral imbecile. When children on the school registers are considered, the proportion is still higher, partly because mentally deficient persons tend to die earlier in life and partly because proportionately more children than adults come under supervision and observation on the ground of mental defect. Taking the average of the results obtained from the figures collected by the medical investigators the proportion was 1 to 127 or 0.79 per cent., being approximately 1.0 per cent. in urban districts and 0.5 in rural. This difference may be due to the greater facilities for medical inspection appertaining in the towns at the time the estimate was made. In some towns the proportion was higher than 1 per cent., being in Birmingham 1.12 per cent., in Manchester

1.24 per cent., and in Lincoln 1.10 per cent. Thus in these districts there is at least one mentally deficient to about eighty-five ordinary school children. There is a preponderance of males in the proportion of 3—2. Out of 436,833 children on the school registers in the areas investigated 3,437 were mentally defective, and of these 2,590 or 75 per cent. were in need of provision. In England and Wales there are probably at present well over 50,000 mentally deficient scholars on the registers, and that 35,804 of these are in actual need of provision and care (the total number of children on the school registers being given as 6,044,394). It must be noted that these figures refer only to school registers, and do not necessarily include all mentally deficient children. These figures are confirmed by later reports, and the estimate is more likely to be too low than too high.

Natality and Mortality.—With regard to the natality and mortality of mentally defective persons, the Commissioners deplore the lack of sifted and precise evidence, but quote some valuable statistics of Dr. Tredgold's, which show that the average number to each family is very large, being about seven or eight, and that, though there is a large mortality, there is a considerable survival. The Commissioners state that the evidence before them cannot be taken as a sufficient basis for generalisation, but, so far as they go, the figures and statements support the opinion that, during the years of procreation and child-bearing, there should be control and supervision in the case of mentally defective men and women.

From the evidence of the medical investigators it seems that a large number of feeble-minded men and women drift into the workhouse before they are thirty years of age, and, with regard to the maternity cases amongst feeble-minded women, Dr. Melland of Manchester found that of nineteen feeble-minded women in the lying-in wards of the workhouse infirmaries, in all

but two cases the children were illegitimate, and one of these two women had had an illegitimate child before she was married; all of the women were young. Dr. Tredgold found that of 61 feeble-minded mothers, 19 were legally married and 42 had had illegitimate children.

The general conclusions and recommendations on page 201 include the following paragraphs:—

In dealing with the classes idiot, imbecile, feeble-minded and moral imbecile, we are dealing with conditions chiefly inherited and subject therefore, to amelioration only to the extent to which the mental and physical force available in the individual approaches to the normal. But this conclusion does not preclude a considerable advance in knowledge and self-command among the higher grades of the defective—so far at least that they may be trained so as to contribute materially to their self-support.

The problem . . . affects very largely education, Poor Law and prison administration, and the treatment of it by one authority would greatly reduce the charges and simplify the obligations of other authorities dealing with these branches of public work.

Mental Defect and Crime.—After examining a large number of expert witnesses, including Dr. Scott, London House of Detention for Males, Miss Dendy, Mr. A. A. Allen, Chairman of the London Special Schools Committee, the late Dr. Ashby, Dr. Savage, Dr. Mott, the late Sir T. Clouston, Mr Legge, then Inspector of Reformatory and Industrial Schools, and Sir Edward Fry, the Commissioners summed up that, on general grounds, many competent observers were of the opinion that:—

if the constantly recurring fatuous and irresponsible crimes and offences of mentally defective persons are to be prevented, long and continuous detention is necessary. From the earliest age, when they appear before the magistrates as children on remand or as juvenile offenders until and throughout the adult period of their lives, the mentally defective, at first reprimanded and returned to their parents, then convicted and subjected to a short sentence and returned to their parents, and then later continually sentenced and re-sentenced and returned to their parents and friends till for crimes of greater gravity they pass to the convict prisons, are treated, as this reiterated evidence shows, without hope and without purpose, and in such a way as to allow them to become habitual delinquents of the worst type and to

propagate a progeny which may become criminal like themselves. This, as has been said, is an evil of the very greatest magnitude. The absolute and urgent necessity of coping with it is undeniable.

242 of 2,353 prisoners, or 10.28 per cent., were mentally defective, and this is probably an underestimate, because other observers place the percentage as high as 20 per cent.

Mental Defect and Criminal Responsibility.—After listening to the evidence of experts and quoting that of Mr. Troup, Permanent Under-Secretary to the Home Department, and of Mr. Shadwell, one of the Commissioners in Lunacy, the Commissioners concluded :—

We find therefore—and there is evidence with regard to it from all quarters—that there is also another larger* class of persons who can often be hardly distinguished from the “certifiably insane,” who are “morally incapable,” “socially dangerous,” and “obviously weakminded,” who are “not thought to be certifiable” and who “from weakness of mind are really not wholly responsible.”

One scheme submitted to the Commissioners was the expansion of the industrial school system so as to meet the needs of the mentally defective, but that they are not in favour of such a scheme is shown by the following quotation :—

In the case, however, of children or young persons, who are mentally defective, reform, in the sense of influencing and educating them in such a way that they become normal members of society, is in most instances impossible. They can only develop within the limits of their defective or retarded brain power. Hence for them not a definite time-limited sentence, but a supervision that may be extended for a long time, sometimes for life, may in many instances be required. . . . Yet as a precedent the Reformatory and Industrial Schools are valuable. They recognise the right of the non-responsible offender to special disciplinary and educational treatment.

It is evident, therefore, that mentally defective persons should be treated on the ground of their mental

* Larger than the lunatic class

condition, and not on the ground of their criminal offences.

Mental Defect and Drink.—62.7 per cent. of habitual inebriates were found to be mentally defective, and the conclusions reached are, that there should be an extension of the legal powers of detention and control of such cases, not as criminals and drunkards, but as persons of feeble mind. Dr. Branthwaite, Inspector under the Inebriates Act, stated that many chronic inebriates are none other than feeble-minded persons, drunkards simply because they are feeble-minded. Dr. Mott pointed out that the weak-minded react more readily to alcohol than do normal persons. The superintendent of the Bentry Certified Reformatory (Dr. Fleck) stated that he could not conceive the possibility of 70 per cent. of inebriates ever acquiring sufficient self-control to be able to keep themselves from drunkenness and support themselves. Many other expert witnesses gave similar evidence, and it is plain that a very large proportion of the present-day chronic inebriates should be treated on the ground of their mental weakness and not as criminals. Regarding the more far-reaching effects of alcohol, the report ran as follows :—

We are not called on to decide between the various well-known opinions which are held regarding the causal relationship of alcohol and alcoholism and mental defect, still less between the conflicting views concerning the possibility of alcoholism in the parents having any direct action on the germ or organism of the offspring, and thus affecting the well-being of the race. . . . It is sufficient to insist upon the salient and incontrovertible facts that many chronic inebriates are mentally defective; that many mentally defective persons are liable to suffer speedily, seriously and permanently from the effects of alcohol; that in any case alcohol in the parent leads practically to many evils in the family by destroying the organisation of the home and by bringing about neglect, ill-treatment, starvation and disease among the children.

Mental Defect and Illegitimacy.—Witness after witness examined before the Royal Commission spoke of the urgent need of detention for feeble-minded girls.

The late Sir Thomas Clouston, Physician Superintendent of the Royal Edinburgh Asylum, said :—

feeble-minded young women are subject to overwhelming temptations and pressure towards sexual immorality. Many of them have had illegitimate children and this often at very early ages. One had seven such children. I look on this source of immorality as an extremely grave one in our social life. When illegitimate children are borne by such young women the chances are enormously in favour of their turning out to be either imbeciles, or degenerates, or criminals.

Other witnesses,* who held responsible positions, gave similar evidence, showing how feeble-minded women give birth to child after child, all of them illegitimate, and at the same time pointed out that there was considerable doubt whether any machinery existed to provide control for these women. The girl could be kept in the work-house until she was sixteen, or if the guardians adopted her, until she was eighteen, but after that time she is free to take her discharge. The consequences of her doing so are that she will probably return to give birth to a child and then again take her discharge. Cases where feeble-minded women took their discharge and returned again and again to give birth to illegitimate children are well-known to most boards of guardians, who were, nevertheless, up to the passing of the Act, powerless to prevent it.

Mental Defect and Institutional Care.—Even when institutional care was available it was not of the right kind, i.e., lifelong, as is shown by the following :—

Speaking before the Royal Commission of the results of Training, Dr. Caldecott, Medical Superintendent of Earlswood, says :—

Roughly speaking two-fifths of our patients are idiots, two-fifths low-grade imbeciles and one-fifth high-grade and trainable

* Mr Baldwin Fleming, one of the General Inspectors to the Local Government Board; Miss Skinner, Superintendent Nurse of the York Union Infirmary; Mrs Ruspini, representing the Church Penitentiary Association; Miss Helen Benington, Lady Superintendent of the York Rescue Homes.

imbeciles. Of 341 cases discharged during the last fifteen years 3.25 per cent were earning wages, 3.81 were at home and very useful, 7.5 per cent. at home and useful, and the rest, 85.5 per cent. were no good, and should have been taken care of for life.

At Lancaster 37 per cent. were high grade, and 9 per cent. of those discharged were earning wages, 33.5 per cent. at home and 40.3 per cent. in workhouses or asylums : the conclusion reached being that none of the cases, be they competent workers or not, ought to go out into the world. As Dr Douglas, the then Medical Superintendent said :—" If they have learnt a trade, they still turn to common forms of labour, and, if their friends let them idly loaf about, no wonder they get into mischief."

These figures and facts all serve to show that the efficient care of our feeble-minded is one of national importance, and yet, even after recent events, comparatively few people have much connected knowledge of the subject. This ignorance has led to gross errors in the past. Ireland quotes a case, related by Howe, in which for economical reasons an idiot male pauper from one town was allowed to marry an idiot female pauper from another, and in consequence the authorities had ultimately to support the pair and the three idiot children born to them. Mistakes of this kind are not likely to occur now that legislation for control and education of all persons of feeble mind has spread, but they serve to emphasise the need for suitable control.

As a result of the report of the Commission several attempts were made to promote legislation which would give suitable powers to deal with the urgent need of better care for the mentally defective. In 1912 two Bills were introduced in the House of Commons, one by Mr. G. Stewart, M.P., and one by the Home Secretary, the Right Hon. R. M'Kenna. Both these Bills passed the second reading, and were referred to Standing Committees. After several postponements the latter Bill was re-introduced in March, 1913, and was finally passed on August 15th, 1913, its provisions coming into force on

April 1st, 1914. Section 67 of the new Act repealed the Idiots Act of 1886.

The following documents were issued by the various directing bodies to those who would actually be concerned in administering the details of the Act. They are important, and can be seen in "The Law relating to the Mentally Defective," H. Davey, Stevens & Sons, Ltd., London, or can be purchased from Government publishers :—

(1) Provisional regulations made by the Secretary of State and issued on April 2nd, 1914. These are extensive, and cover not only the duties of the various bodies who have to administer the Act, but also set forth rules for the governance of certified institutions and homes. Supplementary regulations were issued on April 30th, 1914.

In addition regulations were issued with the concurrence of the Local Government Board to deal with the Section relating to Poor Law Administration for Mental Defectives, and others with the concurrence of the Lord Chancellor to deal with the Sections relating to Lunacy Act Administration.

(2) Rules under Section 44 (5), determination of place of residence.

(3) Provisional regulations made by the Board of Education under Section 2 (2) of the Mental Deficiency Act, 1913, accompanied by model arrangements as set forth in a documentary form; also by a circular letter, which explained the views of the Board in the administration of the Act by Local Education Authorities, both issued in March, 1914.

(4) A circular letter sent out by the Local Government Board to Boards of Guardians and Joint Committees, and one sent out by the Home Office to Clerks and Justices.

(5) A "circular to County and County Borough Councils," i.e., the Local Authorities under the Act, sent

out by the Board of Control on April 2nd, 1914, giving them instructions, a "Memorandum as to Grants to Voluntary Societies," and "Suggestions for Institutional Rules."

More recent documents throw some light on the progress of the work. In November, 1916, the Board of Control issued a circular letter to Local Authorities pressing for economy in administration because of the exceptional circumstances arising out of the war. This circular has limited the activities of authorities, and caused much of their constructive work to be postponed.

The circular letter pointed out that there was a "prevailing dearth of institutional accommodation," and thus makes it clear how great is the need of constructive work.

They give the cases which are most urgently in need of institutional treatment, as (1) women under poor-law care who are likely to have illegitimate children on discharge, more especially if they have venereal disease; (2) young women now at large or about to leave institutions who are in danger of corruption; (3) children about to leave special schools with no decent homes to go to and unable to protect themselves; (4) youths who are a source of local corruption, and industrial and reformatory school children who are found to be defective and need control.

The duties of proceeding with the task of ascertainment and the provision of supervision for these defectives in the area are emphasised, and notes *re* finance and reception contracts (which should be five yearly) are given.

CHAPTER II

PRESENT METHODS OF DEALING WITH MENTAL DEFECTIVES

THERE were up to the passing of the Mental Deficiency Act in 1913 and the formation of the Board of Control comparatively few organisations devoted to the primary purpose of caring for the feeble-minded.

There are now various agencies providing for the care of mentally defective persons, all working either under the direction of the Central Authority, *i.e.*, the Board of Control administering the Act, or in co-operation with it. These agencies are :—

- (a) Board of Control.
- (b) Local Authorities established under the Act.
- (c) Poor Law Authorities under the Ministry of Health.
- (d) Education Authorities administering the Elementary Education (Defective and Epileptic Children) Acts, 1899-1914.
- (e) Voluntary Associations.
- (f) Guardianship by approved individuals.

Taking these in order :—

(a) The Board of Control.—The formation of the Board of Control has led to an advantageous simplification of the methods of dealing with the feeble-minded. This Board is charged with the general superintendence of matters relating to the supervision, protection and control of defectives. It consists of not more than sixteen Commissioners, of whom four are legal and four medical and, at least two, women. In addition to exer-

24 METHODS OF DEALING WITH DEFECTIVES

cising general control the Board certifies, approves, supervises and inspects institutions and homes, visits defectives, provides and maintains institutions for defectives of dangerous and violent propensities and takes such steps as may be necessary for ensuring suitable treatment of cases of mental deficiency.

The Board of Control has charge of the administration of the Lunacy Acts of 1890 to 1911, as well as the Mental Deficiency Act, and the Commissioners in Lunacy holding office at the time of the passing of the latter Act became members of the Board.

(b) **Local Authorities established under the Act.**—These are the Councils of Counties or County Boroughs and the London County Council, except in the case of Lancashire where the Lancashire Asylums Board is the Local Authority. These councils are charged with the duty of forming a Committee for the purpose of administering the powers given to them under the Act. To these Committees, in addition to members of the Council, can be co-opted Poor Law Guardians and other persons who have special knowledge of the subject, and a proviso is made that some of the members must be women. These local authorities have compulsory, obligatory and permissive powers. They must care for and protect all defectives not of school age, *i.e.*, under 7 and over 16 years of age, who are found to be in need of care. (Sec. 2. (1) (b)). Their obligatory duties are set forth in clause 30 (*a-h*) of the Act. They have no compulsory duty for children between the age of 7 and 16 unless they are notified by the Education Authorities that these defectives need care. Their obligatory and compulsory powers are subject to financial arrangements as set out in the circular letter of the Board of Control to the Local Authorities, dated April 2nd, 1914, which represents the payment of one-half the cost of performing such duties.

Their permissive powers are much wider in scope, but

Local Authorities are not allowed to spend more than $\frac{1}{2}$ d. in the pound from the rates in any one year. They should take steps to assist all defectives in their area and they are urged to co-operate with other authorities or voluntary agencies in every possible way. They are instructed to note that different institutions are needed for different classes of defectives and that much economy can be effected in providing suitable institutions if co-operation with other authorities is complete. They may build institutions alone or in combination with other authorities or they may arrange a contract with already existing institutions (including those of Poor Law Guardians with the concurrence of the Ministry of Health), if approval is given by the Board of Control.

They are also instructed wherever possible to assist by kindly supervision those defectives who are not properly cared for in their own homes, it being pointed out that maintenance at home or under guardianship, if rendered efficient, is much more economical than institutional care.

It is also their duty under the Act, as detailed in the provisional regulations, to compile a register of all defectives "subject to be dealt with" in their area, ascertaining at the same time through a Medical Officer the degree of mental defect: and to find and supervise suitable individuals who are willing to undertake guardianship.

(c) The Poor Law Authorities and the Ministry of Health (late Local Government Board).—It is still the duty of Poor Law Authorities to provide for defectives whose maintenance is chargeable to them or who are in receipt of relief, but it is probable that a gradual reduction in the number of defectives so dealt with will take place because many will be intercepted by the action of the new authorities under the Act and placed under care. It is not considered desirable that defectives

26 METHODS OF DEALING WITH DEFECTIVES

should be cared for in workhouses,* therefore Poor Law Authorities are directed to make arrangements for institutional or other care. Several Poor Law Authorities can combine and form joint committees and make suitable arrangements, but if there are not a sufficient number of defectives to render such an arrangement an economical one they should make an arrangement with the Local Authorities or in the case of educable children with the Local Education Authorities. Arrangements may also be made direct with residential schools, voluntarily managed, which are conducted under the certificate of the Board of Education. The Poor Law Authorities are also directed to help in compiling the register of defectives in their area.

The circular letter of the Local Government Board to Boards of Guardians and Joint Committees issued on March 31st, 1914, emphasises most of these points and in addition points out that Poor Law Guardians are mentioned as suitable to be made members of the Committees formed by the Local Authorities. This letter urges Poor Law Authorities to co-operate in a friendly spirit with the Local Authorities and, should they wish to combine with any other Poor Law Authorities in order to form joint institutions, to communicate first with the Local Authorities and confer with them about the arrangements for such extra provision of care.

The Poor Law Authorities are also directed not to hesitate in notifying to the Local Authority through the Ministry of Health and the Board of Control those of their cases which are better under the care of the Local Authorities, *i.e.*, (1) Defectives under the age of 21 who cannot receive proper care by the Poor Law Authorities. (2) Women who have illegitimate children

* A later circular letter from the Board of Control gave permission for this as a temporary war economy measure if such premises were made separate.

or are prostitutes. (3) Those who need care and are likely to take their discharge. (4) Moral imbeciles.

(d) Education Authorities.—The Elementary Education (Defective and Epileptic Children) Act, 1914, amended the permissive powers of the Act of 1899 by making it the duty of the Local Education Authority to provide for the education of mentally defective children. The same Act conditionally provided for the enforcement of attendance of such children at day or residential schools. Finally, the Education Act, 1918, extended the provision of the 1914 Act so as to apply to physically defective and epileptic children. The Education Authorities deal with all educable defectives between 7 and 16 years of age.*

The Mental Deficiency Act requires that children so dealt with shall on or before reaching 16 years of age be notified by the Education Authority to the Mental Deficiency Authority if there is reason for believing that continued care is necessary. It is satisfactory here to quote the experience of the Incorporated Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded, conducting the Sandlebridge Residential Schools in Cheshire, to the effect that such cases are almost invariably so reported, and subsequently adopted, with full responsibility for maintenance.

The Mental Deficiency Act made it compulsory for the Local Education Authorities to ascertain what children within their areas are defective and to find out which of these are non-educable and to notify to the Local Authorities the names and addresses of all. It was, however, still optional whether they dealt with the educable mentally defective children in their area who did not come under Section 2 of the Act until 1914, when it was made compulsory.

* It is permissive for the Education Authorities to deal with children under the age of seven years. The Regulations for Special Schools, 1920, state on page 8 that no child may be admitted to a Special School under the age of two years.

28 METHODS OF DEALING WITH DEFECTIVES

However, the Board of Education issued Regulations on March 24th, 1914, to come into force on April 1st, 1914, which made amongst others the following provisions.

Dealing with children between the ages of 7 and 16, the School Medical Officers are the Medical Officers for the purposes of the Act.

If the certifying Medical Officer states that defective children are uneducable or unsuitable for special schools then the Local Education Authority must notify the case to the Local Authority under the Mental Deficiency Act. The Local Education Authority must, as shown above, if they think that further care is desirable, also notify the Local Authority when any defective child in a special school, or school, or institution is nearing the age of sixteen and is likely to be withdrawn. If they think that the case need not be notified then they must refer it to the Board of Education for decision. It must be pointed out that backward children are in quite a different position as regards educability to defective children. These two classes of children should on no account be taught in the same school or the same classes.* Sir George Newman in his report for 1917, dealing with the mentally subnormal child, states that the number of mentally defective children is 80,000 and that there are 10—20 per cent. of dull and backward children in addition. The Board of Education also issued a list of :—

Model arrangements for Education Authorities.—

These include the following points. The head teacher of any school shall bring to the notice of the Local Education Authority and the School Medical Officer any child who appears to be defective. The last named

* Education Authorities should provide classes for backward children as was done in 1914 by the Manchester Education Committee. (See Annual Report of Chief Medical Officer of the Board of Education for 1917, p. 104.)

reports the result of his inspection on the form provided. The periodical school medical inspection will also help to find defective children.

In the special schools all cases must be examined by the School Medical Officer at least once a year to ascertain (1) whether the child is fit to go to the ordinary schools; (2) whether the child is unfit for the special school; and (3) whether though fit for the special school on the ground of educability, the child is unsuitable because his or her presence at the special school is detrimental to the interests, discipline and progress of the other children in the school (*i.e.*, through being a moral imbecile). It is also the right of any parent or guardian to claim a re-examination any time after a period of six months has elapsed from the last examination.

The Local Education Authority must arrange for similar inspections of children in their area who are attending schools other than their own. If defective children are educable in special schools but are better under other supervision or guardianship then they must take steps to notify the Local Authorities.

In regard to Blind and Deaf children who in addition may or may not be defective, the Local Education Authorities are instructed to obtain particulars about such cases and about their progress at school if they are at school and then to consider whether they should be notified as defectives or not. The Elementary Education Act (Blind and Deaf Children), 1893.

The Board of Education issued a circular on March 30th, 1914, stating amongst other things that the Regulations refer to notification only and the Model arrangements to ascertainment of numbers and degree as well as notification. It is compulsory for the Local Education Authorities to take steps to ascertain the numbers and degree of defect of those defective children in their area, and the Chief Medical Officer to the Board

30 METHODS OF DEALING WITH DEFECTIVES

of Education lays especial stress on the need for such ascertainment in his Report for 1917, page 110.

The circular points out that idiots and imbeciles are ineducable and that some low-grade feeble-minded children are also ineducable, but urges a fair trial of all such low-grade feeble-minded first before notifying them to the Local Authorities.

It also urges that defective children who are educable but whose presence in the special school is considered to be detrimental should be given a fair trial also, because many of them improve very much with proper teaching and can often be taught to overcome the habits which make their presence detrimental to other children. If possible such children should, if the training of the special school does not suffice, be given a trial in a residential school because of the greater effect of continuous supervision in eradicating habits of such nature.

Children who have minor obnoxious habits or are given to a petty pilfering are often curable by such means, but true moral imbeciles (see p. 80) are not, and are found to be detrimental to the interests of other children.

Defective children of school age who are notified to the Local Authorities as in need of better care and guardianship should continue to attend the special schools if possible under the new arrangements for their care.

It is also pointed out that Local Education Authorities have considerable power in that parents are under an obligation to see that their children attend school.

The Local Education Authorities are also urged to help in ascertaining the number and whereabouts of any other defectives in their area either over or under the age of seven.

It is explained that Schedule F (see Appendix V., p. 258) is a long form, but that it has been carefully compiled and is in its present form for good reason.

The certifying Medical Officer is instructed to use the evidence which can be supplied by the teacher as to the mental state of the defective.

Finally, the need of kindly co-operation with the parents or guardians is emphasised.

Special Schools.—In 1917, 56 Local Education Authorities had established 177 special schools (two of them residential). Voluntary bodies had established 16 schools. The accommodation so provided was for 15,249 children. The estimated number of mentally deficient children was upwards of 30,000.

Therefore it is evident that in spite of the efforts made in some large towns, the provision of facilities for the suitable education of feeble-minded children may be very small. This means either that the child drags along hopelessly in one of the ordinary schools, wasting the time and energy of the teacher and the rest of the class, or that he is given up as imbecile and stays at home, sinking deeper and deeper into mental stagnation and needing continual watching and care by his mother.

On the other hand, special schools are to some extent harmful, without organised lifelong control after the child has left school. It was certainly foolish to train and give a simple education to a large number of children yearly, and then to let them loose on society; because in spite of the work done by the after-care associations, many of them sink to low levels and swell the ranks of those needing relief. As Dr Kerr, Medical Officer to the London School Board, says :—

A considerable proportion show little moral restraint, some are almost without speech, some seem incapable of work, others work without progress or intelligence; very frequently, too, they are addicted to staying out or even wandering at night, and many of this last class come into the hands of the police. Some have bad habits and immoral tendencies are common. Many are capable of control when in the Special School, but speedily become irregular and uncontrollable on leaving it. . . . About one-third will be capable of materially contributing to their own livelihood after

32 METHODS OF DEALING WITH DEFECTIVES

leaving, one-third will partially contribute but require an After-Care Association of some kind to look after them, whilst the remainder should not be allowed to mix with the rest of the community, but should receive some kind of custodial treatment.

After quoting various sets of figures concerning the children who have left the special schools the Commissioners summed up :—

No figures could better show the necessity of supplementing the special classes by other means, only 17 per cent. of one set of children getting good work and the larger number of children returned as "lost" or "at home" (not doing work) show the need of some after-care and supervision. It appears that even allowing for the exclusion of cases at the outset as unsuitable (of too low a grade) for the special classes, 47 per cent. will never earn their own living, 28 per cent. would probably earn under control, and 22 per cent. would be possible wage earners.

and concluded :—

We may conclude then that the results of this survey confirm the general opinion that the special school system is rather an incident in the general scheme than of main importance in itself and is . . . not the central point of any such scheme.

Provision is made by a minute of the Board of Education, dated 8rd February 1915, for a repayment to the Local Education Authority of one-half the expenditure incurred in maintaining mentally deficient children in residential schools and for incidental expenditure thereon. Also for a similar repayment in respect of charges incurred by the Authority in respect of the establishment, enlargement or alteration of residential schools, and in respect of the interest on or repayment of capital raised for the purpose of contribution to such schools.

Thus it will be seen that any Local Education Authority who takes up the question of dealing with the defective children in its area can be of the greatest assistance to the general scheme.

But better provision is needed for care or supervision on leaving school, and this absence of organisation for lifelong care has in the past taken away nine-tenths of

the value of special schools; but they have served a useful purpose in that they have kept registers and records of the feeble-minded children in their district, and in that they have brought out and emphasised the need of lifelong care.

(e) **Voluntary Associations.**—These take several forms :—

(1) *The Central Association for the Care of the Mentally Defective.*—This is an incorporated body, formed largely on the suggestion of Sir William Byrne, Chairman of the Board of Control, to assist in the administration of the Mental Deficiency Act. Its Executive Council is composed of members representing the County Councils Association, the Association of Education Committees, the Association of Poor Law Unions, Medico-Psychological Association, Asylums Boards Metropolitan and Lancashire, Charity Organisation Society, Church Army, Salvation Army, and a large number of other representative bodies. The objects of the Central Association are set forth as follows :—

1. To do all such things as may, in the opinion of the Council of the Association, conduce to the efficiency of voluntary work, whether paid or unpaid, in connection with the Mentally Defective, or with any persons coming under the supervision of the Board of Control, or which may tend to promote or ensure the suitable treatment of defectives in England and Wales.

2. To render assistance, either directly or indirectly, through other bodies, societies, or persons, to Public Authorities in the administration of Acts relating to the care, control, treatment or education of defectives, when such assistance may be requested by such authorities.

3. To form, or assist in the formation of, Local Voluntary Associations in the different statutory areas in England and Wales, such associations to have as their main object the co-ordination of work for defectives in

34 METHODS OF DEALING WITH DEFECTIVES

the area, and particularly the friendly visiting in their own homes of defectives not in Institutions.

4. To promote co-operation between Voluntary Societies dealing with defectives and between Public Authorities and Voluntary Societies, and to act as a means of communication between Local Voluntary Associations and Voluntary Bodies and Government Departments or Public Authorities.

5. To organise the training of teachers, visitors, guardians, attendants and others concerned in the care, treatment and supervision of defectives, and to assist in providing such persons for Public Authorities, Voluntary Associations or Institutions.

6. To keep records of (a) Defectives moving from one area to another; and (b) Societies, Institutions, etc., dealing with defectives.

7. To provide, or assist in providing, places of safety, observation homes, occupations or occupation centres for defectives, and to make special provision for "double" * defectives.

8. To issue literary publications, leaflets and pamphlets.

9. To promote, watch, support or oppose any legislation or amendment of existing legislation, relating to defectives.

10. To assist in the care of individual defectives who are not already under the Statutory Authorities in all areas where no Local Voluntary Associations are formed.

(2) *The National Association for Promoting the Welfare of the Feeble-minded.*—The work of this body has already been referred to on page 7. It has been

* A "double" defective is a child who is defective in two respects, for instance a child epileptic and feeble-minded or blind and feeble-minded. It is obvious that these children may be difficult to place in an institution because these usually make provision for one type of defect only, and cannot take cases needing exceptional care.

in existence since 1895, and has done a very important work in developing and co-ordinating the work for the Feeble-minded through all the times when the different movements have been in progress.

(3) *Institutions, Residential.* —The privately-managed residential Institutions have dealt for the most part with the higher grade and more improvable cases, and it is found that when dealing only with such cases the cost is much reduced. Even when dealing with the highest grade cases it must not be thought that they can be fitted to look after themselves, and lifelong care should be the primary object of all institutions. The evidence given shows the advantages to mental defectives of a well-ordered, disciplined life.

The Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded with its institution at Sandlebridge has provided the best illustration of this class of home and the results with the children are excellent. Only high-grade cases have been accepted from the first. The want of legal powers of detention formerly gave great difficulties with the parents, who were either actuated by selfish motives or could not be made to see the need of lifelong care. As Miss Dendy said in her evidence before the Royal Commission, "the results of putting these children into boarding schools are simply wonderful. Neither boys nor girls show the least restlessness. They (the big ones) are as easily guided as little children."

Institutions supported by Voluntary Agencies and certified by the Board of Control can, under agreement with their managers, be utilised by the Local Authorities, but such Institutions cannot otherwise be used for cases sent for care by an order from a judicial authority.

All such institutions must be approved by the Board of Control and be subject to visiting and supervision and be carried on under the Board's regulations.

(4) *Voluntary Associations* have been formed in some of the Council and Borough Areas, and these work in close relationship with the local authorities and are affiliated with the Central Association for the Care of the Mentally Defective. The Central Association has in fact done very much to promote their formation. The objects and methods of such Associations are summed up as follows :—

To visit and befriend defectives living at home and to endeavour to secure through various organisations and societies regular visitors for such defectives.

To visit and supervise at the request of the Local Authority under the Mental Deficiency Act defectives who are under “supervision” under Section 30 (b) of the Act.

To secure for defectives through the Local Authority under the Mental Deficiency Act, 1913, or other authorities or charitable agencies, admission to homes and institutions, medical treatment and advice, occupations, etc., or such other assistance as they may require.

To co-ordinate the work of the various societies dealing with defectives in their area.

To make special provision and to secure medical advice and treatment for doubtful cases; also to assist in providing observation Homes and to provide, or assist in providing, occupation centres, etc., for defectives.

After-care Committees do work of great value, because, under the Act, there is no compulsory after-care, except in those cases which are judged to be bad enough to be notified by the Local Education Authorities.

Committees for the care of defectives in any area can work best by :—(1) undertaking supervision of those leaving special schools or institutions and going to their homes;

(2) finding out suitable persons for guardianship and visiting and supervising the work of such persons;

(3) helping in the supervision and care of any

defectives in their area who are not helped under the Act. (MacMurchy.)

The following points show how great is the need for after-care :—

Sir George Newman, using the evidence from London, Liverpool, Frankfurt and other large towns, concluded that 40 to 45 per cent. were unemployable. But it is significant that the After-care Committee of Birmingham, established in 1901, through the agency of Mrs Hume Pinsent, who has done so much for the furtherance of methods of dealing with the feeble-minded, reported in 1910, after nine years' investigation, that of 650 cases, only 18 per cent. were doing remunerative work, and at least 65 per cent. were not. After four years of trial, the Employment Bureau was given up because of "the impossibility of obtaining and retaining ordinary situations for any but an extremely limited number of our high-grade cases." Situations may be found, but the feeble-minded do not retain them, especially when "they get older and the difference between them and their fellows is accentuated." The 1915 Report states the aptitude for work soon fails after leaving school and especially after the age of 21.

In practice, defectives are fit for few posts, except those in which a kindly employer makes special allowances for failings.

But apart from employment under competitive conditions, supervision is of great value, and even the highest grade of feeble-minded is in great need of such supervision and guidance.

For instance, a Midland County Voluntary Association reports that their visitors generally undertake a district in which they are well known; therefore friendly relations are readily established. Where the home surrounding have been unsatisfactory, it has been possible in most instances to remove the defective to better surroundings, and the visitors have been, in

38 METHODS OF DEALING WITH DEFECTIVES

many cases, instrumental in obtaining improvements in the conditions under which a particular defective was working, or in obtaining more suitable employment, etc.

The Board of Control recognises the great value of the work of such voluntary agencies and is empowered to make to them grants in aid of their expenses. (M. D. Act, Section 46 (2).)

(f) **Guardianship by Private Individuals.**—The powers and duties of such guardians are defined in General Home Office Regulations, Sections 201-217. They include the following :—No corporal punishment can be inflicted, full provision for education, recreation and occupation of the patient has to be made, notice has to be given within a period of seven days of the patient's reaching the age of 21 years and suitable arrangements must be made for medical attendance.

Guardians are subject to inspection and have to keep books and comply with the regulations laid down.

Any patient becoming unsuitable for guardianship must be notified to the Board of Control and to the authority paying for maintenance and will be removed to an institution, if advisable.

It can be seen therefore that guardianship is recognised by the Board of Control as a valuable and economical way of providing care for defectives of certain classes.

Certain chosen children thus placed under kindly and efficient guardianship will probably be as well or even better cared for than by other means, provided (1) that the need for lifelong care is fully realised and provision made to prevent any break in the continuity of such care; and (2) that if the child becomes unsuitable for guardianship because of age and sexual development or for any other reason, he or she is promptly removed to an institution. But it must always be remembered that guardianship to be efficient has to

be of a high level and that only a small proportion of defectives are really better under guardianship .

In addition, experience in the care of defective children teaches us that those coming from their homes to institutions are much more difficult to manage and train if they come later in their life.

It is not easy to keep a defective who is under guardianship from undesirable influences from outsiders or chance happenings, and such influences may lead to bad effects which are difficult to overcome and which would never have been started if the child had been under institutional care.

It is probable then that both on account of the difficulty of finding efficient guardians and on account of the difficulties just mentioned, only a small proportion of defectives will be suitable for such care. Those suitable will be defectives for whom sufficient money is available to secure continuity of guardianship for life and whose nature and disposition is such that (1) outside influences have little detrimental effect; and (2) there is no danger of the defective becoming a danger to society by any sexual development.

Placing under Control.—Defectives can be placed under the Control of Institutions or Guardians, voluntarily or compulsorily. Only certain defectives can be dealt with compulsorily, *i.e.*, those subject to be dealt with under the Act; but a defective placed voluntarily under control can be placed under compulsory control if the Board of Control decide that he cannot be satisfactorily dealt with elsewhere.

Placing under control voluntarily takes place at the instance of the parent or guardian in the case of idiots or imbeciles, or of the parent only in the case of feeble-minded under the age of 21. Thus feeble-minded children can be placed under control by the parent, but when under control in this manner and not under an order, he or she may be withdrawn after due notice

40 METHODS OF DEALING WITH DEFECTIVES

at the instance of the parent, unless, on appeal to the Board of Control, that body decide within 14 days that further detention is desirable in the interests of the defective.

Placing under control compulsorily takes place if defectives are subject to be dealt with under the Act; *i.e.*—

(1) Defective children notified by the Education Authorities as needing such care, either because they are not educable at special schools, or are, as moral defectives, detrimental to the interests of other children at these schools.

(2) Defective children coming before courts and becoming liable to be sent to or being in Industrial or Reformatory Schools.

(3) Defective children found to be neglected or abandoned or cruelly treated, or without visible means of support; and,

(4) Defective children who are in Lunatic Asylums.

Defective adults “subject to be dealt with,” include those who are criminals, or in need of care for neglect or cruelty, or habitual drunkards, or women who are in receipt of Poor Law relief at the time of giving birth to or being pregnant with an illegitimate child.

Petitions.—In all such cases, whether voluntary or compulsory, unless a Judicial authority has already dealt with the case and made an order, a petition is presented. A petitioner must state that the person to whom it relates is a defective and subject to be dealt with, and whether a previous petition has been presented. The petition must be signed by the petitioner and one other person (who may be one of the persons giving a medical certificate). It is accompanied by two medical certificates, and is presented to a Judicial Authority, who, after considering the case, decides whether to make an order or not.

No one can present a petition or sign a medical

certificate who is financially interested in the effects of the defective, or in the institution to which he is to go. Nor can any relative of a defective sign his medical certificate.

Two medical certificates are needed, one that of an authority approved by the Board of Control, and the other, if possible, that of the usual medical attendant of the defective.

If the defective is not an idiot or imbecile, but merely feeble-minded, the certificate must also be signed by a judicial authority.

An order given by a judicial authority operates within 14 days (or if the defective is in a place of safety, within 21 days), lasts for one year, and can only be confirmed by the Board of Control. After the second year the continuance is in periods of five years. If the defective is under the age of 21, the case must be reconsidered by the visitors within three months of the defective's attaining the age of 21 years.

Orders can be made by the judicial authorities or courts apart from the instance of parent or guardian or officials of local authorities in the case of defectives coming up for offences rendering them liable to imprisonment or detention, and in cases where the petition is presented by a relative or friend, or local authority or official.

If the judicial authority makes an order, the defective is placed under control or guardianship.

Establishments for Control.—Establishments for control are of the following kinds (see Mental Deficiency Act, Section 71) :—

(1) State Institutions are those for defectives of dangerous or violent propensities established by the Board under the Act.

(2) Certified Institutions are those in respect of which a certificate has been granted under the Act to the managers to receive defectives therein: they include,

42 METHODS OF DEALING WITH DEFECTIVES

subject to the provisions of the Act, any premises provided by a Board of Guardians and approved under the Act.

(3) Certified Houses are houses in which defectives are received by the owner thereof for his private profit, and in respect of which a certificate has been granted under the Act.

(4) Approved Homes are premises in which defectives are received and supported wholly or partly by voluntary contributions, or by applying the excess of payment of some patient for or towards the support of other patients in a house in which defectives are received by the owner thereof for his private profit and which has been approved by the Board under the Act.

Visiting of defectives in establishments is allowed for the nearest relative at least every six months, unless such visits are found by the superintendent to be detrimental to the defective.

A definite classification of cases according to some recognised scale is important, because there is need for institutions to specialise in the different grades of defect, for the purpose of economy and facility of administration. By such specialisation great economy in the teaching staff and apparatus can be effected, as well as in financial arrangements. This has been the experience in America.

American Methods.—The visits of certain of the Commissioners to other countries, and especially that to America, the result of which is embodied in a special volume of their report, only served to emphasise the value of lifelong care and of the farm colony system, with a separation of the various grades of defect.

In America the institutions are of a high grade of efficiency, and are worked very economically. The earlier ideas were that the feeble-minded could be brought to earn their own living, but these had to be given up, and lifelong care was found to be much more desirable from all points of view. The Commissioners were

impressed by the large size of the institutions, a characteristic rather advantageous than otherwise since the cases could be divided into three departments, and could be transferred from one department to another if necessary. The three departments were (1) the Custodial for the lowest grade idiots; (2) the School for the higher grade children; and (3) the Industrial for higher grade adults.

It is certainly better to separate cases first into classes according to the sex and age, and then to divide them according to the grade of intellect and to their power of working, without paying too much attention to their power of doing school work, which is almost the least important part of their training. The Waverley establishment, Boston, Mass. (the Annual Reports of which are well worth study) is well described by Miss Dendy in her article "Workers or Wastrels" in the Charity Organisation Review of November, 1909. At this institution there were then about 1,400 (and in 1917, 1,778) people of both sexes and all ages from six to sixty. The colony is state-supported. All, but the men and boys who are physically incapable, are employed in useful work, which consists of road-making, coal-loading, gardening, farm and house-work, and also reclaiming swampy ground. Beginning with very simple tasks to train the senses, mental defectives are usually able to turn to useful work even though they cannot make the least progress in school. A farm colony for the older men is attached to Waverley, and here 250 men live and work contentedly, while the two institutions help to support one another by exchanging farm and industrial produce.

Dr. Fernald, the Superintendent, in a paper on "The Growth of Provision for the Feeble-minded in the United States," published in *Mental Hygiene*, vol. 1, No. 1, January, 1917, gives the following plan:—
(1) A *Parent Institution* fairly near to a large centre for (a) the young, (b) the bed-ridden and

44 METHODS OF DEALING WITH DEFECTIVES

infirm, (c) the custodial, (d) the new admissions for classification; with (2) *Colonies* twenty to fifty miles away on good land—some of these colonies may be temporary to clear areas of land and some permanent; and (3) *Measures for After-care* of the best cases who may be able to live in their own homes or be boarded out.

The results of the Newark State Custodial Home for Feeble-minded Women with its object "to detain women of a child-bearing age in order to prevent the propagation of persons of feeble mind with its attendant evils to the community" were particularly good. "About half the cases admitted to this institution were decidedly imbecile or idiotic, the other half being high-grade imbecilès, or young women whose mental defect was so slight that on casual observation it would not be evident."

In the United States the provision for the feeble-minded and epileptic under State care has risen very rapidly. In 1890, 4,001 were cared for, in 1904, 15,599, and in 1916, 84,137. Dr. Fernald points out (1) that this rise is due to increased knowledge and ascertainment and not to increase of feeble-mindedness and epilepsy; and (2) that the provision, even in Massachusetts, which is caring for nearly three times as many per 100,000 as the country at large, only a small part of what should be done is being done.

Finance.—The cost of caring for cases in an institution is a serious item. The Commissioners, dealing with pre-war prices, estimate that for the 66,509 cases "needing provision" the cost would be £1,175,802 under their scheme, meaning an increase of £541,492 over the amount spent then on the care of the mentally defective: but they point out that some of this increase would be borne by the parents and friends of the cases dealt with. They think that the past methods were abnormally wasteful, being founded

on entirely wrong principles, so that much could be saved by reorganisation, the adoption of uniform methods, and by the different "colonies" and "hospitals" specialising in the different grades of cases, and in this way being able to work more economically. The accounts of institutions should be audited, and a system of collection of contributions from relations enforced.

With regard to the cost of maintenance at colonies or institutions, the pre-war capital amount was estimated as from £100 to £120 per head. Now, however, and probably for some time to come, this should be taken as at least 200 per cent. more. The pre-war cost for maintenance exclusive of capital was reckoned generally at from eight to nine shillings per week. At the Sandlebridge Colony the gross cost for maintenance for the year ending 30th September, 1914, including teaching, but excluding rent charge and depreciation, was £23 18s. 2d. The cost for the year ending in the same month of 1918, with a monthly average of 290, was £36 4s. 8½d., an increase of £12 6s. 6½d. In common with other managers of institutions faced with similar difficulties, the Governors found it necessary to meet this increased cost by an addition to the charge for the maintenance of patients.

It will still be necessary to provide for supervision and care for many children and adults who will, for one reason or another, not be brought to special schools, or have petitions presented for them; such are children under seven awaiting admission to special schools, children excluded from special schools and not provided for by institutions or other care. One knows from experience how many cases there are in need of such care, and unable to obtain it.

As a physician, I see constantly, either amongst out-patients or elsewhere, defective children who have come under no control, and do not appear likely to do so.

Notification of these cases, and requests for control, do not have much effect, even though the parent may be anxious to be relieved of the burden of caring for the child and may be forced by this burden to neglect the other children. I am impressed by the great need for searching out defectives in every area, and having them upon a register, so that they can be found when opportunities for ensuring their care may be provided. This need has also been expressed by other persons who have had to administer the Act (see p. 49).

Later Experiences.—In order to illustrate the working of the Mental Deficiency Act, and to show the difficulties that have arisen, it is interesting to note a few of the points raised at a Conference on its Administration, which was held at the Guildhall in February, 1918, under the auspices of the Central Association for the Care of the Mentally Defective. Since most of the different classes of individuals concerned in the actual administering of the Act were present and took part in the discussions, the report is of great interest.

Accommodation.—Clear evidence was given to show that much more accommodation is at present badly needed. Mrs Hurle, speaking of experience with the Local Authority in Somerset, stated that "the existing accommodation is totally inadequate and much of it wholly unsuitable." She went on to say that the financial clauses of the Act do not provide the necessary funds. Alderman Parry said that in Monmouthshire, out of 600 cases only 6 had been sent to institutions, and the bad cases were left on their hands. Sir Harcourt Clare, Clerk to the Lancashire Asylums Board, said that the certified institutions managed by the Associations and bodies other than the Local Authorities are full, and that the provision of certified institutions for defectives by the Local Authorities seemed for the present to be practically impossible. He stated that they had at

present 500 cases in institutions and 600 on their books waiting for accommodation, and not a single bed to be found for any of them in the whole of Lancashire.

He went on to say that the only way for the present was to have premises set apart and certified as institutions in the existing workhouses; that this had been done to some extent already. Mr. Cole, Chairman of the Middlesex Deficiency Committee, spoke very strongly in favour of this course, basing his opinion on the experiences gained from the Brentford Institution. Mr. Waugh, Chairman of the Bradford Committee, was of the same opinion. It must be clearly understood, however, that such arrangements should only be temporary, and that such premises should be replaced by separate institutions as soon as possible. Dr. Coupland, Medical Superintendent of the Royal Albert Institution, said that the use of such premises should be a war measure only.

The whole question has been one of finance. The war has crippled temporarily the development of constructive work.

There is, however, need for more local thought and effort. Mr Leslie Scott, K.C., M.P., Chairman of the Conference, showed how much unevenness of constructive work there had been in different areas, informing the Conference that, of the £150,000 available in one year for spending on the mentally deficient, only £60,000 had been spent, because the amounts of work done by different Local Authorities varied so much, while the allotment made by each authority had been on a population basis. Thus some had spent their allotment, but others had not.

And yet there is immense need of spending money on the work, because such spending is really a great economy to the nation. A glaring example of how it is an economy was given by Dr. Tredgold, who said that the Clerk to a Board of Guardians had told him of a defective, who had been an inmate of a workhouse for

many years, and had cost the Board £1,600. He went on to say that the total bill to the nation must be enormous at present, when one considers the cost of legal proceedings, maintenance in pensions, etc., poor-law relief, and the officials employed in the work.

The Conference was so impressed with the urgency of the need for more institutions that they passed resolutions urging that the work be carried on even in war-time, and that the financial limitations on Local Authorities who are administering the Act with vigour should be removed.

Duties of Local Authorities.—Mrs. Hurle, dealing with the duties of Local Authorities under the Act, brought out several points of difficulty.

The clause "from birth or from early age," in the definitions of the various kinds of mental deficiency, and the word "neglected" in the statement of the subject to be dealt with, have given rise to much difficulty, because either the early history of the case may not be available, or a case cannot be proved to be neglected, and in this way cases really needing control may avoid it. Obviously, both these are weak points of considerable importance.

A further one concerns the defective women having illegitimate children. These women are most urgently in need of control, but cannot be brought under such unless they are in receipt of Poor-Law relief at the time of pregnancy or at the birth of the child.

Mrs. Hurle gave examples which are worth noting in full.

"A. B., a feeble-minded lad of 25, was committed for trial at the Court of Quarter Session. The Local Authority arranged to send him to a Training Institution in the event of the Court handing him over to them. The medical evidence before the Court showed that he was mentally weak and was mentally degenerating, but no evidence could be produced to show that the defect had existed 'from birth or from early age.' He was sentenced to six months' imprisonment. It is easy to see that such a case as this will go on being an increasing burden to the community."

"C. D., a weakminded, facile woman of 30, has twice been in an asylum, has had three illegitimate children, and cohabits with her stepfather. She could not be dealt with under that Act, there being no evidence of early imbecility. This woman is free to reproduce her species at the expense of the community."

One can readily supply examples where neglect is difficult to prove, and yet where training and control are badly needed but not in force because the parent is unwilling.

Mrs. Hurle also shows that the clause "consent shall not be deemed to be unreasonably withheld if withheld with the *bona-fide* intention of benefiting the defective," is a cause of difficulty and needs amendment. Further, that the time limit of fourteen days for the execution of an order (see p. 41) after it has been made is often a cause of hardship, or highly inconvenient because suitable institutional accommodation may not be at once available. The Court should therefore have power to extend this period, if necessary.

Ascertainment.—Miss Evelyn Fox, Hon. Secretary to the Central Association, drew attention to the extreme importance of care of defectives in any area, arguing that the reason why many area authorities were not impressed by the importance of providing care was because they had no reliable information of the number and needs of the defectives in that area. This was borne out also by Mr. Leslie Scott, who emphasised the need of ascertainment in the strongest possible manner.

There is no doubt that if the true facts and figures relating to the defectives in any area are brought clearly before the authorities charged with providing for them, those authorities will see the burning need for activity, and begin to adopt proper measures.

The ways and means of ascertainment and notification under the Act are rather complicated, being divided amongst various authorities who, though urged to co-operate (see p. 26) may not do so. Seeing how very important such work is, the need for more definite fixing

It is only under such conditions that it is possible to provide adequately for the happiness of the feeble-minded.

The age of sixteen is a very bad time to break the continuity of the feeble-minded child's life, and to remove him from his familiar surroundings and trusted teachers. At that age it is not easy to adapt him to a new life, and to give him the same confidence and trust in those who look after him. Also from the point of view of the teacher or superintendent, it is disheartening to have cases for whom much care and trouble has been taken removed as soon as they reach a certain age. After twenty years' experience, the Governors of the Sandlebridge Institution are most emphatic in stating that the lifelong care should be in the same institution and, as far as possible, under the same officers.

Summary.—One can sum up by saying that residential care is by far the best remedy, and that special day-schools can never be a really effective measure for dealing with feeble-minded children, though they are very necessary and a great advantage at present, because there is not nearly enough residential accommodation.

Thus it can be seen that there is still a great deal to be done in ascertainment, in construction, and in propaganda work. It must be noted that the principles upon which such work is based are :—

(1) That all mentally defective persons, who are really incapable of earning their living when left to their own devices, should receive from the State such special protection as may be suited to their needs.

(2) That the community should be protected from the harm that may be done by allowing feeble-minded persons to be free to follow their own inclinations or to come under the control of ignorant or unscrupulous individuals.

(3) That the different circumstances and different needs of the various cases necessitate the provision of

different methods suitable to the several types of case and not the provision of any one fixed method.

(4) That such cases should be dealt with primarily on the ground of their mental defect, and not, as hitherto, on the ground of their poverty, their violence, or their crime.

The passing of the Mental Deficiency Act has made possible a great advance in caring for mental defectives. If much is to be done for them, if they are to be made self-supporting in any degree, it is necessary that they should come under control early. If taken as young children they are more amenable to discipline, more able to learn useful occupations, good habits can be taught, and they can be guarded from dangers and temptations.

Perhaps one can justly say here that most of the feeble-minded never become mentally anything else but children and very unintelligent children at that, though it must not be forgotten that they develop in physical strength, and may attain with puberty the instincts and passions of the adult.

I once visited and examined at their homes some thirty mentally deficient children, who had been rejected from the special schools in Manchester for various reasons.

Many of them were a source of endless trouble and annoyance to their parents, who would have been only too glad to obtain some relief from their burden; others were jealously guarded and hidden away by doting mothers, who lived on, hoping for some improvement, grudging no effort and never admitting that the child was a source of immense anxiety and care.

Parents, however fond, do not as a rule live long enough to be lifelong guardians, and also they, as persons who often meet with little success in controlling the child, are not likely to be able to control the adult. Lifelong care of the feeble-minded person, strengthened by legal powers of detention in an institution if neces-

sary, is therefore of paramount importance, and we must hope that the well ordered scheme brought out by the Board of Control will gradually develop into an effective reality.

Criticisms of these ideas abound, short-sighted criticisms based on the ground of expense, and of the uselessness of wasting time and energy on the training of these unfortunates. But we must realise that money spent in this way is well laid out, and at the same time that training, properly developed, can lead to profitable work and production.

It is not possible to "gather grapes of thorns, or figs of thistles": yet if the thistle is not kept within bounds and prevented from spreading its kind broadcast, it may do untold harm and involve a far greater expenditure of time and money than if efficient measures for controlling it had been taken from the first; and, to carry the allegory further, even a thistle may be of some small value if properly utilised.

CHAPTER III.

PHYSICAL CHARACTERISTICS.

Classification of Feeble-minded Children.—If we classify cases of mental deficiency according to their causation we can divide them into two great classes—(1) Primary (Genetous), which form 90 per cent., and (2) Secondary, Accidental or Acquired, which form 10 per cent. of the whole. The term Genetous as used by its originator, Dr. Ireland, includes all primary or developmental cases as distinguished from those of acquired defect.

On the other hand, if we classify cases according to their physical characteristics, we find that, though feeble-minded children may belong to one of the six special types described in Chapter VI., the great majority do not. At first sight they appear very little different from ordinary children. There is always a tendency to exaggerate the importance of definite types and definite deformities, and it is very necessary to appreciate fully the fact that the majority of feeble-minded children show no constant physical characteristics by which they may be recognised.*

The six special types referred to are (1) the Cretin, (2) the Mongol, (3) the Microcephalic, (4) the Paralytic, (5) the Inflammatory, and (6) the Hydrocephalic; these can be recognised by their physical characteristics.

In considering the statistics relating to mentally

* For educational and institutional purposes a classification based on the mental capacity is necessary. See p. 87, and Tredgold, p. 167.

deficient children, it is important to distinguish between those coming under observation at a hospital and those examined and found suitable for admission to a special school or an institution for high-grade cases. The former include all grades of mental defect and the latter feeble-minded children only. Of 100 consecutive cases of mental deficiency (all grades) under my observation at the Manchester Children's Hospital, Pendlebury, 7 were cretins, 16 mongols, 11 microcephalics, 7 paralytic, 3 inflammatory, 0 hydrocephalic, and 2 followed measles.

Dr. Still, taking 350 cases, found that 10 or 2.8 per cent. were cretins, 77 or 22 per cent. mongols, 22 or 6 per cent. microcephalics, and 26 or 7 per cent. paralytic.

On the other hand, of 904 cases examined for admission to the Manchester Special Schools 8 or 0.9 per cent. were cretins, 11 or 1.1 per cent. mongols, 5 or 0.55 per cent. microcephalic, 19 or 2 per cent. paralytic, 5 or 0.55 per cent. hydrocephalic, and 1 or 0.1 per cent. inflammatory.

Dividing these cases into the 784 who were fit for admission and the 120 who were rejected as too defective, we find that of the 784 cases admitted (some of them on probation) 6 or 0.7 per cent. were cretins, 4 or 0.5 per cent. mongols, 5 or 0.5 per cent. microcephalics, 9 or 1.2 per cent. paralytic, and 2 or 0.25 per cent. hydrocephalic.

Of the 120 cases rejected as too defective 2 or about 2 per cent. were cretins, 7 or 6 per cent. mongols, none microcephalic, 10 or 9 per cent. paralytic, 3 or 2 per cent. hydrocephalic, and less than 1 per cent. inflammatory.

These figures can be tabulated as follows :—





PLATE II. Feeble-minded Children of the Ordinary Type.

TABLE I.

			HOSPITAL CASES. (All grades.)		FEEBLEMINDED.		All Cases
			Lapage.	Still.	Rejected.	Admitted.	
			Per cent.	Per cent.	Per cent.	Per cent.	
Cretins	...	...	7	2.8	2	0.7	0.9
Mongols	...	...	16	22	6	0.5	1.1
Microcephalics	...	...	11	6	0	0.6	0.55
Paralytics	...	...	7	7	9	1.2	2
Hydrocephalics	...	...	0.0	0.3	3	0.25	0.5
<i>Of no special type</i>	...	...	54	50	59	91	87
Epileptic	...	...	—	6	20	5	7

These figures show conclusively that the special types and notably the mongols and paralytics tend to be of low grade. Paralytics, however, are often able to learn if treated. Cretins, being improvable, often come under notice first as hospital cases. The figures also show a more important fact, namely, that 91 per cent. of the children suitable for treatment as feeble-minded are not of any special type, even when epileptics are put into a separate class.

Physical Defects.

(1) STIGMATA OF DEGENERATION.—The physical stigmata of degeneration are common in feeble-minded children and in other children with a neuropathic inheritance, but it is well to state at the outset that too much importance must not be attached to these deformities. They do not necessarily mean that there is any tendency to mental deficiency, and they are often present in ordinary children. Also their presence or absence does not give any indication of the degree of mental defect. They are, however, more marked, more numerous, and more often found in feeble-minded than in ordinary children. Such stigmata are developmental in origin, and are present though not always evident at birth.

(a) *Defects in the size and shape of the Head.*—Such defects are estimated much more exactly by contour measurements than by judging from the appearance or feeling with the hand, but for ordinary purposes the greatest circumference taken with a tape-measure is enough. When there has been an early paralysis, the skull on the side on which the brain is affected often shows a marked diminution as compared with the other side (Petersen). Ashby and Shuttleworth both comment on the fact that deficient occipital development or poor formation of the back of the head is common in the feeble-minded. Other writers state that a frontal deficiency is common also. However, it is not possible to form an idea of the local or small abnormalities of the brain from external skull measurements, because the shape of the skull is not always a true indication of the shape of the brain beneath. Abnormal development or undevelopment of one part of the brain may simply mean that the neighbouring parts of that organ are displaced, and not that the skull is altered in shape. On the other hand the grosser defects certainly make a difference to the size and shape of the skull; this is well shown in microcephaly, where the very small brain allows the skull to close up early, giving the diminutive head that is characteristic of the condition.

The detailed examination of the heads of 200 feeble-minded children by the methods described in Appendix II. gave the following results:—

The most common defects of the heads of feeble-minded children are smallness and asymmetry. The normal circumference of the head of a school child should be over 20 inches, and 34 per cent. of the cases had heads less than 20 inches in circumference, while 26 per cent. had asymmetry. Taking the external auditory meatus as a fixed surface mark, the posterior or occipital part of the skull was found to be much smaller in the feeble-minded than in normal children. This deficient occipital

development was most noticeable in the cases with poorest mental powers (see Table V). The value of the measurement round the greatest circumference of the head is that it helps to show poor development of either occipital or frontal regions.

The average cranial capacity obtained by multiplying the length, height, and breadth together (an inexact method but one which gives approximate results) showed that 20 children of normal intellect gave an average of 3105.5 c.c., 20 feeble-minded classed as "Good" 2969.6 c.c., and 20 feeble-minded classed as "Bad" 2723.3 c.c.

As will be seen from Table II., the averages of the head measurements did not differ so much as one might have expected, this being especially so in the case of the maximum circumference. This only serves to emphasise the point that the majority of the feeble-minded do not show any grossly marked physical deformities or differences from ordinary school children.

Therefore the common cranial defects are those of asymmetry or irregularities in the conformation of the skull rather than marked diminution of capacity, though there is a certain tendency to diminished capacity corresponding to the degree of mental deficiency.

DESCRIPTION OF PLATE III.

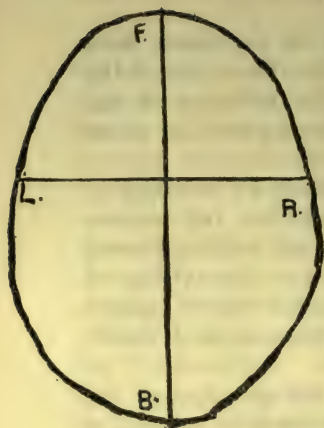
1, 2, and 3. Tracings of the head of E. C., æt. 11 years, a child of average intelligence. An example of a well-shaped though small head. Inside tracings 2 and 3 are tracings from a feeble-minded child of approximately the same age.

4. Tracing of the head of E. R., æt. 9 years, a feeble-minded child, who had suffered from a right hemiplegia five years ago. An example of the rounded, small head. The right-sided hemiplegia and the smaller left side of the skull are correlated. The middle line in front and behind was carefully marked in all tracings.

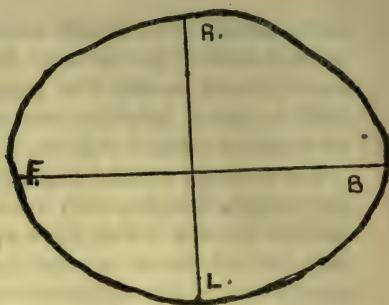
5. Tracing of the head of H. C., æt. 12 years. An example of an asymmetrical head.

6. Tracing of the head of C. B., æt. 11 years. An example of marked rickety deformities.

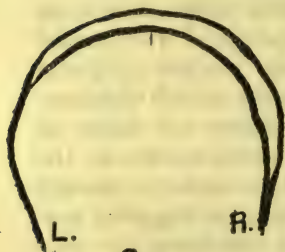
The head measurements in each case were:—



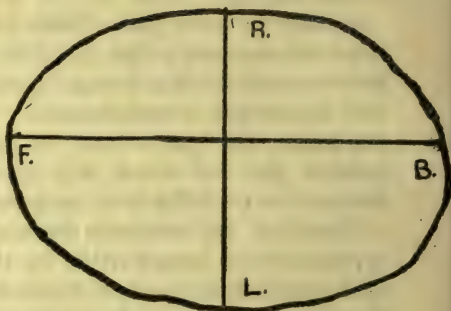
1.



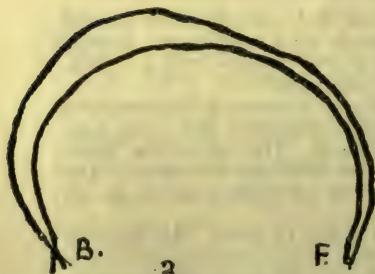
4.



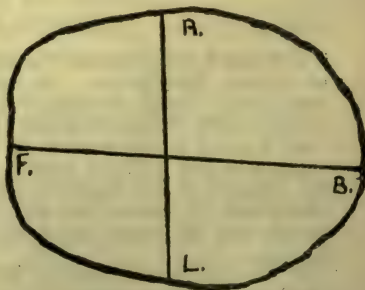
2.



5.



3.



6.

PLATE III.—Tracings to show Abnormalities of the Head as found in the Feeble-minded (for description see p. 59).

	Tracings 1 2 & 3.	Tracing 4.	Tracing 5.	Tracing 6.
Circumference ...	20 in.	18½ in.	21 in.	20¼ in.
Basion to nasion over skull ...	15 in.	—	15 in.	14 in.
Bitragal arc ...	11 in.	—	13½ in.	13 in.
Antero-posterior diam.	18 cm.	16.5 cm.	19.5 cm.	17.7 cm.
Occipital segment ex- ceeds frontal by ...	1¼ in.	equal	equal	⅞ in.
Bilateral diameter ...	13 cm.	13 cm.	13.8 cm.	13.7 cm.
Right segment exceeds left by ...	equal	¾ in.	1 in.	½ in.
Height ...	12 cm.	11.5 cm.	13.7 cm.	11.5 cm.
Bitragal diameter ...	11 cm.	10.5 cm.	11.5 cm.	12.2 cm.
Distance from nasion to basion ...	13.2 cm.	13 cm.	14.5 cm.	13.5 cm.

(b) *Deformities of the External Ear.*—The normal ear is seen in Pl. IV., No. 5, and, since it is originally developed from six processes or tubercles, it is easy to see that signs of separation may remain or that some part may be deficient. The six tubercles form what are known as the crus helcis, the helix, the antihelix, the tragus, the antitragus, and the lobule. The tragus and antitragus as respectively the parts just in front and just behind the opening of the ear. The lobule is the soft fleshy dependent part below the opening: the crus helcis, the helix, and the antihelix together form the upper and cartilaginous part above the opening, and the whole of the external ear outside the skull is known as the pinna.

DESCRIPTION OF PLATE IV.

I.—Defective left ear of T. H., showing deficiency of the lobule, absence of the fossæ, maldevelopment of the helix, and a tendency to reversion to the pointed ear. The right ear was only deficient in the shape of the lobule.

II.—Defective ear of A. C., exhibiting general deformities in shape, but chiefly remarkable as showing a tendency to lobulation.

III.—Defective ear of G. M., showing general smallness with absence of the lobule.

IV.—Defective ear of J. J., an example of the large protruding ear with a heavy lobule.

V.—Normal ear (Keith's "Embryology").

VI.—Defective ear of R. H., showing a deficient lobule, a

deficient helix, fusion of the helix, antihelix and antitragus, and a general rounding.

VII.—Defective ear of E. M., showing deficiency of the upper part of the pinna.

VIII.—Defective ear of a Mongolian imbecile, showing smallness, general rounding, and crumpling. The upper part of the pinna overhangs in a characteristic manner (see Plate IV., No. 8).

IX.—Defective ear of A. R., showing shallowness of absence of the fossæ, deficiency of the tragus and antitragus, and general maldevelopment.

An eminence known as Darwin's tubercle is to be seen at the upper angle, and this corresponds to the tip of the ear in the lower animals. In man the ear is turned over so that the tip points forwards and downwards.

Defects of the external ear include absence or deficiency of the lobule, irregularity or increased depth of the fossæ, and deficiencies in shape or size of the whole pinna such as excessive breadth, diminished height, smallness and protrusion. Some authors describe more than twenty different kinds of abnormalities, but these, though interesting, are not of sufficient importance to be dealt with more fully here. The mongol ear is the only deformity that goes uniformly with one special type of deficiency.

Defective ears were found in 32 per cent. of my cases, lobular defects being by far the most common. These lobular abnormalities are very common in ordinary children and are a very slight form of defect. The others are not so common and are more marked stigmata of degeneration. An unusual prominence of Darwin's tubercle is sometimes seen, but it is hardly of the same significance as the other abnormalities of the external ear.

It is not very uncommon to find the right ear different from the left, some children having a perfectly formed ear on one side and a defective one on the other.

(c) *Deformities connected with the Eyes.*—Adherent epicanthic folds are everted ridges of skin starting from below the eyebrow and continued round the internal

angle of the eye. They are generally symmetrical, but may be present only on one side. Epicanthus is accentuated, but not caused, by depression of the bridge of the nose, and these folds can be obliterated by pinching up the skin over the bridge of the nose; but they immediately return when the skin is released. They must not be confused with the plica semilunaris which is on the conjunctiva and not on the eyelid.

Epicanthus is not a very common defect. It occurred in 8.79 per cent. of my cases, and in 1.87 per cent. of the ordinary school children examined by Dr. Warner. Squint or strabismus is such a common condition in children that it can hardly be regarded as a stigma of degeneration. A condition known as nystagmus is not uncommon. Nystagmus is really a trembling of the eyes, which move very rapidly from side to side, especially if the child tries to turn them in any one direction. The condition is not likely to improve much.

(d) *Deformities connected with the Palate and Jaws.*
—Certain deformities of the palate are stigmata of degeneration, but others are acquired. Like the other stigmata of degeneration the developmental deformities of the palate have received an undue importance, for if the palates of any unselected group of ordinary children are examined, quite a fair proportion will be found to be abnormal. However, there are certain deformities which are more common amongst the mentally deficient, and elaborate classifications of these can be found in books on mental diseases. Petersen gives eight different forms. He found such defects in 82 per cent. of idiots, imbeciles, and feeble-minded, in 76 per cent. of epileptics, and in 80 per cent. of the insane.

There are two main forms, the V-shaped and the highly-arched palate, and there is often quite a big margin of ribbed and roughened gum-like tissue extending inwards from the teeth to where the high, narrowed arch of the palate commences.

Abnormalities of the palate occurred in my cases more often than any of the other stigmata of degeneration, being found in 67 per cent., but, as we have said, they are not uncommon in ordinary children and are not always of congenital origin.

Cleft palate is not a stigma of degeneration, and is as rare amongst the feeble-minded as amongst ordinary children.

As we shall see later, deformities of the palate apart from cleft palate do not have much effect on speech, partly because the tongue is such a supple organ that it can adapt itself to a highly arched palate.

Prognathism or protruding jaw is described as a stigma of degeneration.

(e) *Other Stigmata*.—Another not uncommon stigma is an incurvation of the terminal joint of the little finger with the concavity of the curve towards the third finger. Other peculiarities mentioned on page 67 are many of them stigmata also.

Comparison of numbers of feeble-minded with ordinary children shows that the former exhibit the stigmata of degeneration much more often and in greater number than do the latter: thus mentally deficient children often have a combination of one or two or three stigmata, and ordinary children may have a single stigma, but have them less often and the combined stigmata much less often than do feeble-minded children.

(2) HEIGHTS, WEIGHTS AND GENERAL PHYSICAL CHARACTERISTICS.—*Heights, Weights, and Head Measurements*.—It will be seen from Table II. (p. 66) that the average heights, weights, and head measurements of 181 feeble-minded children, of ages ranging from 6 to 14 were smaller than those of ordinary children.

The table is divided into three parts, A, B, and C, and the children classified according to their ages into three groups, so that comparisons could be made with the tables given by Professor Hay and Dr. Mackenzie

in their reports on Aberdeen and Edinburgh school children. B represents the corresponding part of Dr. Mackenzie's table, and C the amount of the difference between the averages in A and B.

It will be seen that in all cases the average measurements are smaller in the feeble-minded, and that the disparity increases with age. Apart from their inherited powers of development and growth, the feeble-minded suffer from many disadvantages, for they are more liable to disease and do not have the same opportunity to join in games or physical exercises as do ordinary children. There is often a great improvement in the physique and weight soon after the child has begun such exercises and games as are used at the special schools or the colonies. Nevertheless, the boys and men at Sandlebridge are noticeably small in physique. The girls are also small but differ in that they, not uncommonly, become very fat as they grow older, and this in spite of good hard work. This obesity, which adds to their ungainliness, may in some cases be reduced by thyroid extract (McIlraith).

The circulation is often very poor, so that cold hands and feet and chilblains are common, and it is very necessary to keep this in view when considering clothing and exercise, and to guard against it in cold weather. Taylor and Pearce found that organic heart disease is relatively more common in feeble-minded children and is a causative agent in their downward course, and that the pulse is often irregular. They point out the advantages to the mind and body of treatment directed to improving the circulation.

Supernumerary auricles and fingers and other miscellaneous congenital abnormalities, such as harelip and cleft palate, should not be included under the stigmata of degeneration, and though interesting from a developmental and surgical standpoint, they are not especially common amongst the feeble-minded.

PHYSICAL CHARACTERISTICS

TABLE II.

Age Group.	Sex.	Number Examined.	Height in Inches.	Weight in Lbs.	HEAD (Measurement in Centimetres).		
					Maximum Length.	Maximum Breadth.	Maximum Cephalic Index.
A. Over 6 and Under 12	M.	38	44.49	46.11	17.59	13.53	76.89
	F.	9	44.12	47.3	17.3	13.3	76.87
	M.	50	47.58	54.69	17.98	13.67	76.02
	F.	34	46.8	52.71	17.43	13.43	77.05
	M.	35	52.98	63.39	17.99	13.83	76.87
	F.	15	49.69	65.67	17.12	13.41	78.28
	M.	100	44.52	46.60	18.10	14.18	78.34
	F.	99	44.51	45.62	17.6	13.84	78.64
	M.	101	50.20	59.53	18.25	14.26	78.14
	F.	100	49.93	57.76	17.77	14.16	79.68
B. Over 9 and Under 15	M.	100	55.26	74.02	18.61	14.53	78.08
	F.	100	55.65	78.36	18.28	14.41	78.83
	M.	—	.03	.49	.52	.65	1.45
	F.	—	.39	—	.3	.54	1.77
	M.	—	2.62	4.84	.27	.59	2.12
	F.	—	3.13	5.05	.34	.73	2.63
	M.	—	2.28	10.63	.62	.70	1.11
	F.	—	5.96	12.69	1.16	1.00	.55
	M.	—	—	—	—	—	—
	F.	—	—	—	—	—	—
C. Over 12 and Under 15	M.	—	—	—	—	—	—
	F.	—	—	—	—	—	—
	M.	—	—	—	—	—	—
	F.	—	—	—	—	—	—
	M.	—	—	—	—	—	—
	F.	—	—	—	—	—	—
	M.	—	—	—	—	—	—
	F.	—	—	—	—	—	—
	M.	—	—	—	—	—	—
	F.	—	—	—	—	—	—



PLATE V. Feeble-minded Children showing Defective Expression.

Deafness in childhood is due in most cases to disease, cases of congenital deafness being really rare. In feeble-minded children it is not at all easy to distinguish between deafness and want of attention, and we shall discuss this more fully later (p. 129).

Expression (see Plate V).—*Defective expression* is very common. Mobile, changeable features show a want of attention and an unstable temperament, and an apathetic, stolid look may mean that the brain is sluggish, but sometimes appearances are very deceptive. Creasing of the forehead, twitchings of the mouth, rolling of the eyes are all common, but it is hard to classify or describe the various characteristics that go to make up a defective expression. It is chiefly want of control of the features. To the practised eye, the expression and control of the features and the general bearing are a great help in deciding whether the child is feeble-minded, and the habit of rocking to and fro in a mechanical way generally indicates mental vacancy, and is found more often in the lower grade cases.

One has only to watch a group of feeble-minded children to see that most of them have some peculiarity.

About 60 per cent. of my cases showed definite defects of expression. The defect is often worse when the child is self-conscious and doing nothing; but on the other hand sometimes, when the attention is concentrated on some action such as eating, twitchings and facial contortions may be exaggerated. It is important to note, however, that not all cases show this defective expression, some of the very worst cases of feeble-mindedness being really beautiful children both in face and form.

Other peculiarities.—Some of these children are to a certain extent *insensitive to pain*, although this is not a marked characteristic.

Disorders of *menstruation* are not uncommon, this function being in some cases absent or intermittent or in others very much delayed.

Many defectives have a strongly marked *odour* apart from the question of cleanliness. A rare skin disease, Adenoma Sebaceum, is sometimes seen, but is really so rare that it is not of great importance.

Some have a tendency to *early degeneration of the tissues* of the body, and therefore diseases such as muscular wasting may occur, and there have been two cases of Pseudo-hypertrophic Muscular Paralysis at Sandlebridge, one having developed after admission.

Epileptic fits are also not uncommon; they must not be confused with hysterical fits, and it is not always easy to distinguish between the two conditions (see Chapter VII). Isolated epileptic fits may occur at some epoch, such as dentition or puberty.

(8) DEFECTS DUE TO WANT OF CONTROL.—Want of control often accounts for the defects of expression just described, but more important results are the abnormalities in the general balance and carriage, which are very common. Many of the children are extremely clumsy and awkward in the playground or in the drill hall. This is due to poor development of co-ordination and control over the nerves and muscles and it usually persists, for, although physical drill causes great improvement, feeble-minded children on the average are below the standard in co-ordination and in games or drill, partly because they lack application and partly because they are innately less active. It is curious, when first one moves about amongst a group of these children, to find how difficult it is to avoid knocking against them: they seem to be clumsy and unable to get out of the way.

Deficient or delayed control over the action of the bladder and bowels is very common, and will be considered more fully later. However, control is usually learnt before the child comes to school, and, like delayed walking and talking, the condition is due to a retarded development of nerve influences.

Slavering, a condition in which the saliva is constantly escaping from the mouth and running down the chin, is common, and is largely due to want of control of the lips. The condition can often be cured by teaching the child to hold suitable wedges between the lips for some time daily, whilst quiet and while not running about or playing, or to practise other exercises that give control over the lips.

Summary.—Feeble-minded children show the single physical stigmata of degeneration more often and a combination of two or three of these stigmata much more often than do ordinary children, but too much importance must not be attached to the presence of these stigmata. Of the physical stigmata of degeneration diminution in the circumference and deformities of the head are the most important.

Feeble-minded children tend to be smaller than ordinary children and to be less well developed physically: they also tend to have poor circulations, and to be less resistant to exposure and disease than is the ordinary child.

Most of them show a defective expression and poor development of control over the functions of the body.

CHAPTER IV

MENTAL CHARACTERISTICS

It would be comparatively easy to write a long and interesting chapter by simply presenting cases illustrating the mental peculiarities of the feeble-minded children; but to describe their mental characteristics in an ordered and scientific manner is another matter. The great variability between different children only adds to the difficulties of our task.

Some children are of high grade; some, but very few, are peculiarly bright in some special direction, only to be just as deficient in others; some are more evenly deficient in everything; and finally some, though not very deficient, have no sense of right and wrong, being of the "Moral Defective" type.

Under-development of the mind may be due to any one of three causes or to a combination of two or more of them :—

- (1) Defects of the ways in or the receptive paths to the brain.
- (2) Defects of the central, receptive, storing-up, and association powers.
- (3) Defects of the ways out or emissive paths.

Taking these in order—(1) Defects of the receptive paths are (a) those of the hearing apparatus and its centre in the brain, such as congenital or early deafness or partial deafness causing imperfect interpretation of sounds heard; (b) those of the sight apparatus and its centre, such as blindness or imperfect sight; (c) those

of the touch and muscular sensations causing imperfect impressions of movements performed or of stimuli received on the skin or external paths of the body. Defects of these three paths are not very important, for, though they are usually defective to some degree in mentally deficient children and have some contributory effect in the causation of the peculiarities of a feeble-minded child, it is the central powers that are chiefly concerned.

(2) Defects of these central powers are (a) deficiencies of the perception powers for each of the receptive paths. In this case stimuli are received up the paths, but do not make sufficient impression on the brain to be fully appreciated; (b) deficiencies of attention, memory, or one of the other mental powers; and finally (c) there may be deficiencies of the association, interlinking and co-ordinating parts of the brain: when there is want of power to develop association, impressions reaching the brain do not stimulate it to call up ideas and thoughts, or at any rate only do so to a slight extent.

(3) Defects of the outgoing paths may hinder development of the mind, because they prevent progress and deprive the brain of sensations and memories that would otherwise be received. For instance, a child deprived of speech through deformity cannot get on so quickly as other children, nor does his brain receive any impressions of the movements of the lips or of the sound of the child's own voice to store up. However, defects of the outgoing paths are never the sole cause of feeble-mindedness, though they may act as contributory causes of the mental dullness.

The accompanying diagram (Plate VI.) may help to show more clearly how impressions may reach the brain, to what use they are put, and how actions result from them, memory of these actions being transmitted to the brain and stored up.

We shall now proceed to discuss certain of the

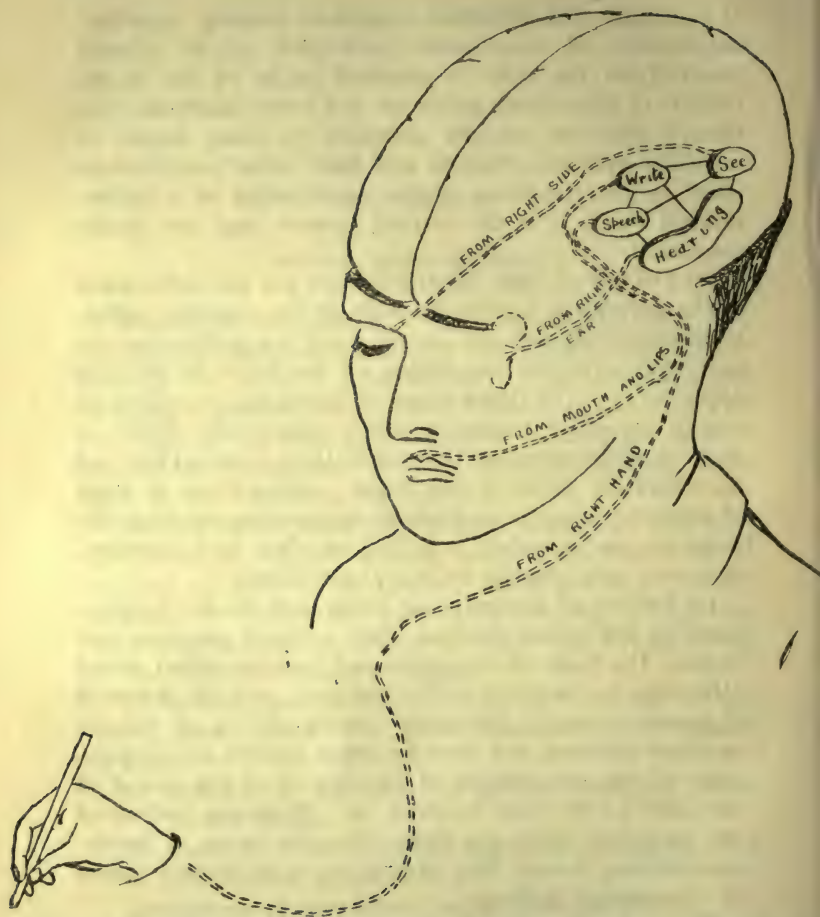


PLATE VI. Diagram to show the position in the brain of the four areas which have to do with the reception, the production and the storing-up of memories of speech, reading and writing. Note the association fibres joining up the four areas, each with the other three. This is an explanatory diagram only, and is not meant to be a scientific anatomical representation of the actual receptive areas in the brain. The system is far too complicated for any such representation.

mental abnormalities of feeble-minded children in greater detail.

Attention.—Attention is of two kinds :—

- (1) Natural or spontaneous, with which the child is endowed.
- (2) Voluntary or established by education.

Unless there is some power of sustained attention, stimuli reaching the brain are not properly used, nor are they stored up as experience; consequently this power is very important in determining mental development. In cases with major defects very few stimuli reach the brain at all, such children being idiots or imbeciles.

Feeble-minded children have comparatively poor powers of attention, especially of the voluntary kind. In some cases the child is, as the mother says, "bird-witted," its thoughts flitting so lightly from one thing to another that little effect is made on the brain. On the other hand we see children so dull and apathetic that it is difficult to attract their attention at all.

Both of these types are common. It is important to know that the first is often of deceptively bright appearance, and in consequence may be thought to have a better chance of improving than the duller-looking child; but one must beware of being deceived by appearances. Some of the least improvable cases are of the first type; for instance such a child may scribble on a paper when asked to do so, but, noticing the fire, runs off to that without finishing the attempt to write, and is next attracted to something else almost immediately. Calling him by name or even shouting at him may make not the slightest impression, but unusual sounds, such as the jingling of coins, often do so.

An example of this type is—

Case I. L. C., a medium-grade case. When testing him, it was at first thought that he was deaf because he neither answered questions nor noticed clapping of the hands or ringing of a bell.

But when a penny was dropped on the floor, the child turned round in a moment and looked for the coin.

The slow child whose mental inertia makes it difficult to gain his attention may, nevertheless, be able to make some use of the impressions he does receive because he is not so easily distracted, and when special efforts are made to attract and fix his attention he may make surprising progress.

It is curious how difficult it is to attract the notice of a feeble-minded child from a distance. Shouting which would immediately attract normal children will produce no effect on a group of feeble-minded, though a more unusual sound, such as that of a whistle, may do so.

Sustained attention, which plays a large part in education, is perhaps one of the highest of mental qualities, and it is certainly one of those which are very poorly developed in the feeble-minded, who have little power of concentration or forced attention, especially in considering abstract ideas. They are much better in applying themselves to manual tasks or in learning lessons where attractive objects are used.

Memory.—Closely connected with, but not wholly dependent on, the power of attention is memory, which varies very much in the feeble-minded. They are often unable to go errands or to remember the simplest instructions, but sometimes have curious flashes, when they remember events that have happened some time before. "Idiots savants" are also curious exceptions. It is quite possible to educate defective children, even idiots and imbeciles, up to a daily routine of duties and for them to carry that routine out with a certain degree of thoroughness; but they need constant supervision to keep them up to the mark, and if left to themselves will degenerate.

Will Power.—The feeble-minded are very easily swayed, and have little power of resistance to the will

of others. It is this that forms one of the chief dangers of letting them loose amongst the community without any supervision or control, for they have not the will to resist temptation, and in many cases come to be classed as criminals or drunkards. They all tend to go with the current, accepting every condition and making no effort on their own behalf; this characteristic is more marked in the lower grades, but is more striking in the higher grades, from whom more is expected.

A Mongol boy was one day found tying a string round the throat of a much bigger boy, who, though a fairly high-grade case, was making no effort to save himself from what were really serious attempts to strangle him. There is no doubt that he would have allowed himself to be strangled by the weaker child in so far as his safety and escape depended on any efforts of his own to defend himself.

This acceptance of conditions and surrender to the will of others is a very definite, and perhaps the most definite, characteristic of the feeble-minded, and especial care must be taken to guard against it. In some ways it is a good thing, making discipline easier and discontent less frequent; but it also leads to a good deal of trouble. One child may make a suggestion and the rest follow like sheep, just as on the occasion when a group of boys were found working stripped to the waist, having followed the example of one boy who thought it was rather a fine idea. This same boy once set all the others to drink the dirty water from a ditch by the roadside, and they obeyed without question.

Some children, however, may be very obstinate and passionate, often in pursuit of a strange whim or fancy.

One girl, A. R., conceived a great attachment to a younger girl, S. A. P., and could not be consoled unless she was constantly with the other child. It became necessary to separate them and put them in different homes. A. R. then went to the length of trying to starve herself because the other girl had been punished.

The feeble-minded have comparatively little enterprise,

and what they have is often misdirected, while anything out of the ordinary puzzles them. Most have the sense to seek shelter from a wetting rain or avoid physical discomfort as far as possible, but even this cannot be relied on, and for this reason alone many are not fit to be left without supervision. An idiot is not capable of guarding himself against common physical dangers, and a feeble-minded child, though never as bad as an idiot, often has to be watched carefully since he may not complain of cold or pain, bad enough to be a serious menace to his well-being.

Dr. Fernald of Waverley, America, tells how one of the feeble-minded men under his care was sent to plough a field and told not to come back till he had finished it. The man did not return till a very late hour, and when he did come back it was found that the horse had kicked him and had fractured his arm early in the day. He had finished ploughing the field in spite of his broken arm. He had not the sense to see that his accident should have prevented his going on with his work, but had gone on till the instructions, which were all-important to his simple mind, were fulfilled.

Some are less sensitive to pain than are normal people, but this is not a marked characteristic. It is found more frequently in idiots and imbeciles. Possibly the reason why some seem cruel or callous is that they do not understand what pain means; but it is more often want of thought or consideration.

Temperament.—The phlegmatic and the sanguine temperaments, on both of which impressions leave small after-effect, are often found.

Phlegmatic children are not worried by any events but go on in a state of indifference, accepting all things as they come and seldom being disturbed. They are neither subject to storms of passion nor sensitive to rebuke, and in consequence are very difficult to teach. The sanguine are different. They are more lively and apparently take a greater interest in things, but nothing has much lasting effect on them; they are impressionable, emotional,

and subject to sudden outbursts which, however, soon pass, since generally the memory is poor and the power of attention bad.

The melancholic type may dwell on a fancied grudge for some time, and even threaten to commit suicide, or they may develop melancholia and become insane as well as feeble-minded.

Many of the children are very sensitive to rebuke and much pleased with approbation; they do not like being passed over at an inspection, and an examination by a doctor can easily be made into a special treat for them, while a rebuke publicly administered will be enough to punish many of them pretty severely.

Association and Ideation.—These powers are very important for education in abstract ideas and for reasoning, in both of which the feeble-minded are especially deficient, and a good test is to ask the child questions about some picture or object, or about school.

In the brain there is an enormous number of association fibres stretching across from centre to centre and linking up receptive paths either with other receptive paths, or with outgoing paths, or with higher functions. Impressions received are stored up so that a stimulus may, by travelling along several association paths, call up various memories, both visual, auditory, and muscular. Thus the word school entering the brain by the auditory paths calls up other auditory memories, such as the voice of the teacher, the visual image of the school-room and school-fellows, with perhaps the physical sense of pain conjured up by the recollection of some hurt received at school. In this way a stimulus may travel along many association paths and call up many memories, at the same time enabling the mind to reason and judge from the impression received. It is easy to see how absence of or diminution in the number of these paths will render the workings of the mind incomplete and often disorderly, and there is actually this

diminution in the association fibres and nerve cells in the brains of the feeble-minded.

High-grade cases can reason fairly well about everyday events, but cannot follow out a line of reasoning very far, and low-grade cases have much weaker powers.

One child, a microcephalic, shown in Plate IX., who was watering some cabbages, knew quite well that he was doing it to prevent their drying up; but when asked whether he would water them if it was raining he first said yes, then after an interval said no, because he would not be allowed to come out in the rain. The idea of rain meant to him staying indoors, but his powers of reasoning did not carry him far enough to see that the cabbages would not need watering on a wet day. Other higher-grade children, questioned in the same way, could readily follow out the line of reasoning and would not have watered plants in the rain.

In *imagination*, too, these children are generally lacking. They may be able to invent a world for themselves as the normal child does, but it is a much simpler world and more often they are happy in the arrangement and rearrangement of a few treasured possessions; they are also fond of attributing human characteristics to inanimate things. On the other hand, Moral Defectives are certainly not wanting in imagination of a mischievous type, and will invent most plausible tales about other people.

Norsworthy in an enquiry directed to find out by mental tests—

- (1) Whether the mental defects were equalled by bodily defects.
- (2) Whether idiots form a separate species or not.
- (3) Whether entire mental growth is retarded, that is, there is lack of mental capacity all round.

came to the conclusion—

(1) That mental defects amongst idiots are by no means equalled by the bodily defects.

(2) In general, at least so far as intelligence is concerned, idiots do not form a separate species, but simply occupy a position at the extreme of some large distribution, probably that expressed by the normal probable curve.

(3) Among idiots there is not an equal lack of mental capacity in all directions. There is something the same lack of correlation

of traits measured in the case of idiots as there is with ordinary people.

Also that idiots come nearest to the central tendency of children in general in the measurements of mental traits which are chiefly tests of maturity, and farther and farther away in tests of ability to deal with abstract data.

The perceptive powers were found to be two-and-a-half times as strong and accurate as the intellectual powers and one-and-a-half times as strong as the memory.

She sums up that the difference between normal children and idiots is in degree and not in kind. It is similar to that between very bright and mediocre children or between mediocre and stupid children. Her paper is a valuable one, and is well worth perusal.

Other Mental Faculties.—In idiots the *higher sentiments* are not present, and there are no feelings of shame, kindness, or unselfishness; but the feeble-minded are not so wanting in natural emotion. Defective control often allows an unusually free play to the emotions so that outbreaks of violence and temper are common; but, though some may be unconsciously cruel and others may have an ineradicable impulse to irritate or injure animals or persons weaker than themselves, the majority can be trained up to habits of kindness and gentleness. This is shown in some cases where the boys at Sandlebridge have been given duties involving the care of animals, and in the way in which stronger boys protect and help the boy who is weak with muscular paralysis.

Feeble-minded children, especially the lower-grade cases, may be entirely without the sense of *shyness* and *reserve* that is usually noticeable in a normal child. On the other hand some are excessively shy, and for this reason are very hard to examine. It is difficult, therefore, in a certain number of cases to estimate the child's mental capacities at the first examination, and the final

judgment has to be delayed till the child has been under observation for a little time.

Since the feeble-minded usually have the sense of *shame* fairly well developed, a very effectual punishment is that of simply putting them into disgrace. They have not exactly a well-developed *conscience*, but they can be made to feel that they are responsible to those in authority. Natural *modesty* is not an outstanding feature, and amongst the girls it is often lacking to a considerable degree, but it is possible by discipline and example to teach the children a great deal, and to make vast improvements in their deportment and manners, though there are always a certain number of intractable cases.

A little harmless *vanity* is a very good thing, and should be encouraged, since it makes the child take more interest in his or her appearance and be more clean and neat. For this reason best clothes and clean linen sometimes have a very beneficial and restraining effect, and it is a good thing to make it a practice that on certain days or at certain times the children put on their best clothes and their best manners.

Home-sickness is not very common, and, unless the children are wilfully unsettled by their relations, they are seldom really discontented with institution life, nor do they show very strong desires to go home. Even with the class who are readily impressionable, feelings, however strong and uncontrollable they may be at the time, are not really deep or lasting. The departure of a favourite teacher may be the signal for a terrible scene of weeping and wailing, but it is all over very soon, and the new teacher duly installed in their affections.

Moral Defectives (Plate IX., p. 108).—The official definition of this class has been given on page . Another description is a person who, by reason of innate defect, displays at an early age vicious or criminal propensities which are of an incorrigible or unusual nature,

and are generally associated with some slight limitation of intellect. Moral defectives of the feeble-minded class are often mentally very little below the average child. They are nevertheless feeble-minded in that they have a definite and incurable mental weakness which necessitates their being under constant supervision; there is a real perversion, so that an impulse, which often comes quite suddenly, drives the child to do things that he knows to be forbidden. A wrong done in a fit of furious temper is only loss of control, but moral defectives, though very liable to yield to sudden temptations to do wrong, on the other hand deliberately map out and execute plans to do harm to others, the ingenuity and cunning displayed being often surprising. After having committed a misdeed they may seem genuinely sorry and may do everything to express their sorrow; but their transient repentance does not deter them from further outbreaks. Luckily discipline and judicious punishment have a certain effect on institution or school cases, so that their outbreaks can be considerably diminished in number though they can never be eradicated. These children must not be confused with those who do wrong, either because they are ignorant or because they have no will of their own; such cases simply follow suggestions made to them, and are usually of low grade and not really moral perverts. True moral defectives really form a very small proportion of the feeble-minded, and quite a number of feeble-minded children who have never had the benefit of proper discipline or care are wrongly put down as belonging to this class.

Discipline and teaching can work wonders with cases which at first promise to be very bad.

Moral defectives are said to form a fairly large proportion of institution cases, and to give a good deal of trouble to those in authority, but statistics of the various institutions vary considerably, and probably much depends on the type of case admitted and the age at

which they enter and the view taken as to what constitutes moral defect.

Many of the cases applying for admission to Sandlebridge were reported to be quite unamenable to discipline or to treatment in any form, but, since they came at an early age, kindly and firm treatment has transformed most of them from sullen vicious children to fairly obedient and useful workers. These are not real moral defectives, but cases which have not been taught sufficiently what is right and what is wrong.

Moral defectives are, many of them, of very high grade, and if their energies can be turned and kept to useful purposes they form good workers and stimulate the others, though, of course, they need constant supervision.

We have seen from Chapter I. that 10 per cent. of habitual criminals are such because they are feeble-minded, some of them being natural criminals and some being so easily led astray that they are unable to keep off the downward path of crime, and perhaps "Natural Criminals" or "Habitual Offenders" would be better names for these cases than Moral Defectives. The term Defective Delinquent has been used in America.

Development of the Powers of Walking and Talking.—Feeble-minded children are late in learning to walk and talk, so that a good deal can be learned about the likelihood of mental development from the age at which these powers appear.

A child should learn to walk and talk between the ages of nine to fifteen months, but of course various diseases may retard development of walking, and sometimes, without any known cause, children who are not feeble-minded are very late in learning to talk. Retarded development of these powers does not definitely mean that there will be permanent mental deficiency, but it means that some parts of the brain, either the centres or the receptive or outgoing paths, are slow to take up their functions,

and that there is something delaying the evolution of the mental and physical faculties.

Infirmities such as rickets, chronic tuberculous disease, ear disease, or wasting diseases are all capable of retarding the development of the mental and physical faculties and of causing mental backwardness, but the power to develop is present, and it is generally possible to distinguish mere backwardness from feeble-mindedness.

When speech is late in developing it may be either because the receptive or emissive mechanisms are not working well, or more often because the brain is lacking in development, and, it may be, in power to develop. Intelligence and will are, of course, very important, and the development of speech must be anxiously awaited, for the longer it is delayed the greater is the likelihood of lifelong deficiency. The relation of the degree of mental and speech defects to the ages of learning to walk and talk are shown in the following table :—

TABLE III

Table showing the average ages at which five different classes of feeble-minded children commenced to walk and talk. "Good," "Medium," and "Bad" refer to the mental capacity as estimated by the teacher. "Defective speech" comprises consonantal anomalies (excluding "f" for "th"), lisping, and marked stammering.

Classification of Case.		Average Age,	Average
		Walk.	Age, Talk.
61 cases classed as "Good" ...	...	1.5 years	1.8 years
44 cases classed as "Medium" ...	...	1.8 years	2.0 years
50 cases classed as "Bad" ...	...	2.2 years	3.5 years
88 cases with good speech ...	...	1.6 years	1.9 years
64 cases with defective speech...	...	2.2 years	3.2 years

It is clear from this table that the greater the degree of mental deficiency the later the child will learn to walk and talk. It is possible that lateness in talking might have an effect on the development of the mental powers of a child not feeble-minded; but to say that inability to talk is the cause of feeble-mindedness is to put the cart before the horse. In any case, the effect

of such delay is slight, for children deaf from early infancy do not suffer seriously in mental power, in spite of the fact that talking is only developed late by special tuition.

This table, as well as showing the definite relation between the delayed development of talking and walking and the degree of mental defect, also shows that children with speech defects have learnt to speak and walk later than those without them. This is explained chiefly by the fact that children with speech defects tend to be of low grade, and partly by the want of exercise of the various parts of the speech apparatus having a delaying effect.

Control over the Bladder and Bowels.—Control over the action of the bladder and bowels is often deficient and delayed in the feeble-minded, though to a lesser degree than in idiots and imbeciles. Like lateness in walking and talking, such delay results from deficient sensation or poor development of the power of control over the muscles. As a symptom aiding the diagnosis of feeble-mindedness, it is of considerable value in the earlier years of life, but a feeble-minded child generally develops this control to a great extent before coming under examination for admission to a special school. It is a symptom which corresponds to a large extent with the degree of mental deficiency, and with a few exceptions the later the age at which control develops, the worse the prognosis as to the future mental state.

Habits.—Habits such as eating coal or garbage or biting the fingers severely are, in children old enough to know better, generally evidence of a greater degree of mental defect.

One of the girls at Sandlebridge had to be prevented from picking out and eating fish heads and other offensive matter from the dust-bins. She was one of the low-grade class.

Want of cleanliness and neatness is often due to

laziness and lack of teaching, but the lower grades are not readily educated up to good personal habits. Feeble-minded children may not be able to dress themselves, and are usually later in learning to do so than are normal children.

Reading and Writing.—Mere inability to read cannot be taken as indicating mental deficiency, unless there is evidence that the child has had careful individual teaching and that the speech is good. It is the child's manner of reading or attempting to read that gives a valuable clue to the mental state. A nervous child hesitates, refuses to begin, and often breaks down; an impulsive or careless child hurries on, regardless of mistakes; a backward child is often ashamed of his inability to read, and may break down for that reason. Feeble-minded children, if they can read at all, show several peculiarities. For instance, some commence readily, but they soon tire or the attention wanders, with the result that mistakes become frequent and pass uncorrected, and the child evidently has no idea of the meaning of the text. Others do not attempt to read, or only do so after a large amount of persuasion.

Writing is, perhaps, a more valuable index to the mental state than reading, because a child often learns to write his name before he can read or spell words; moreover, besides showing certain mental characteristics, the act of writing calls into play the powers of muscular control and neatness of movement. Some of the children have great difficulty in deciding where to begin; others write as far as the second or third letter, and then go on with a meaningless jumble, perhaps recovering later and adding the remainder of the word; others again write one letter reversed, or else make the curious mistake of reversing a word and writing "god" for "dog." This last peculiarity is quite common, and sometimes persists in children who have been in the schools for a year or more.

Peculiarities such as "mirror" writing and ambidexterity may occur but are exceptional. Sherlock states that mirror writing is a special case of ambidexterity which is commoner in idiots than in normal persons. He quotes Heller's and Wegener's opinions that the explanation of it is to be found in the natural tendency of movements at one side of the body to be accompanied by symmetrical movements at the other side. In mirror writing the attention is directed to what should be the subsidiary movement, *i.e.*, that of the left hand, and the idea of this movement becomes more prominent and therefore controls the form the activity takes.

Arithmetic and Calculation.—Feeble-minded children are not good at calculation of any sort, and few learn more than simple addition. Some, with teaching, can do more, and a few can do simple sums in pounds, shillings, and pence, but the result is certainly not worth the time and energy spent by the teachers, for such knowledge is of little use to persons who can never be fit to have the control of money, except in very small sums indeed. It is therefore not worth while making laborious efforts to teach them the value of pounds, shillings, and pence when they can spend the time in learning useful things. Very many cannot even add and subtract beads or bricks with any great degree of accuracy, though they do much better when they have objects instead of figures in front of them.

Manual Work.—It is a very good thing that these children have, comparatively speaking, a certain amount of aptitude for manual tasks. If they are to be happy their minds need occupation and interest, and some simple but congenial task is often the cause of marked improvement in a child who has previously been gradually sinking every day to a lower level of intelligence. A weak mind cannot cope with abstract ideas as well as it can with things concrete and actual.

The various occupations suitable for these children are described later, but the point that any occupation, however simple, is better than none is an important one. It was Cowper who said :—

“Absence of occupation is not rest,
A mind quite vacant is a mind distressed.”

and this certainly applies to the feeble mind as much as to the normal one.

Some children have to start with the simplest tasks, sometimes almost absurd in their simplicity, but they may improve a great deal as a result of the performance of these, and come to be able to do useful things. Gardening and farm work are good for them because the work is out of doors, and the latter is especially suitable because they have usually a great liking for animals. Certainly some animals seem to have an instinctive liking for the feeble-minded, and to have less fear of them than of normal persons. Laundry work is very suitable for the girls, but they should, if possible, have outdoor occupation as well. These children can also be taught to paint and draw, and so learn to judge of form and colour, but too much time must not be spent over these because it is better to pay most attention to teaching them useful occupations.

Goddard has suggested a classification of “morons,” i.e., feeble-minded according to their capacity for practical things, and it is a good one from the point of view of institution life. It is as follows :—

(1) High-grade morons, who can do fairly complicated work with only occasional or no supervision, who can run simple machinery, and who can take care of animals, their only defect being that they are unable to plan.

(2) Middle grade, who can do routine institution work.

(3) Low grade, who can run errands, do light work, make beds, scrub, and care for rooms if there is no great complexity of furniture.

He also points out that a feeble-minded man of 30

years may do more work than a boy of 12 years because, though his mentality is no greater, yet he has had the 18 extra years to gather experience and become accustomed to tasks.

Many of the foregoing remarks apply more or less to ordinary children, and a considerable proportion of the feeble-minded are not at first sight definitely defective; but a little experience soon shows that to say that one of these children of 12 is equal to an ordinary child of 5 is, as remarked by the late Dr. Ashby, an insult to the child of 5. A child of 5 has, in spite of his fewer years of life, infinitely the greater power of making acquirements. A party of feeble-minded boys aged from 12 to 16 need far more help in starting for a walk than would a set of ordinary children of 7 or 8, and when it comes to abstract ideas or more complex mental processes, the difference is more marked still.

The high-grade moral defectives have the greatest mental powers, being, apart from their special failings, not very far below the range of ordinary intellect.

Conclusion.—The brain of the feeble-minded child is deficient in association paths and in receptive powers, so that the mind can neither make full use of stimuli received nor develop to the normal extent. This under-development, which is permanent and due to an actual numerical deficiency of nerve cells and nerve tissues, is of an irregular nature, the children differing in the kind and degree of the defects they present.

CHAPTEH V

DEFECTS OF SPEECH

DEFECTS of speech are common and important amongst the feeble-minded.

The speech apparatus consists of three mechanisms : (1) The lungs, which provide the blast of air to produce sound ; (2) the larynx and vocal cords, which vibrate in this rush of air ; and (3) the mouth, lips, tongue, and teeth, which form the consonants, with the palate and nose acting as sounding boxes. These three mechanisms are under the nervous control of the brain, and, since their muscles have to perform very exact and complicated movements, it can be seen how necessary is constant practice and how important is stimulation of the receptive paths for the speech centres.

In the last chapter we have seen how impressions reach the brain, and reference to Plate VI. will help to show how speech is developed and controlled.

There are three chief sources of the impressions that go to develop sensible speech, viz. : (1) From the hearing apparatus ; (2) from the seeing apparatus ; (3) from the sensations of the muscles, especially from those that have to do with speaking and writing. These sensations are conveyed to four specialised centres in the brain, each of the four centres communicating with the other three by interlinking fibres (see Plate VI).

Thus impressions reaching one area stimulate others, and one area can call another into play. For instance, by these interlinking paths the area controlling the move-

ments needed to produce speech may be stimulated from the hearing area, or, on the other hand, the movements which have produced a spoken or a written word may be transmitted to a sensory area and stored up there.

When one wishes to remember a word or name it is better to store up as many memories as possible; therefore it is better to hear the word spoken (auditory area), to see it written (visual area), to speak it (memory of lip movement), and to write it (memory of hand movement). This shows the value of illustrations and note-taking in lectures and of a combination of lectures and reading. Some people are strong visuals, and remember what they have read and seen better than what they have heard; others, on the contrary, receive more lasting impressions through the auditory channel. Some children are backward because they are "word-blind" or "word-deaf," that is, they have some defect in the areas which receive the impressions of written or spoken words. (Thomas.)

Causation of Speech Defects.—We shall consider the causes of imperfect speech under three headings, viz. :—

- (A) Defects of the Ways in or Receptive Paths.
- (B) Defects of the Central Powers.
- (C) Defects of the Speech Apparatus.

(A) *Defects of the Ways in or Receptive Paths.*—Defects of the actual paths conducting the impulses to the brain are not often the cause of speech imperfections; the paths are very important for the development of speech, but even congenital complete deprivation of one sense does not prevent the child from learning to speak intelligently. In such cases by skilled tuition and by special methods the child can in time be taught to speak, and the brain does not ultimately

seem to have suffered much from the loss of one set of impressions which should have come to it.

Tactile and muscular sensations convey to the brain impressions of the movements required for speaking or writing, and are important therefore in the development of clear and distinct speech, so that a child with defective sensation of the tongue has difficulty in learning the nature of the delicate and skilled movements required of those parts.

Abnormalities of the brain area which receive and interpret the impulses are the cause of speech defect in a comparatively small number of cases only.

(B) *Central Defects.*—The chief causes of defective speech in feeble-minded children are defects of attention, will, and memory. A child with a wandering attention misses many sounds altogether; he also hears many others imperfectly, because his thoughts pass on so rapidly that very little effect is made on the brain.

The intelligence has naturally a great effect on the amount and quality of the speech, and many cases are due to mental inertia. The speech powers are usually a good indication of the mental powers, but they must not be taken alone in the estimation of the degree of defect.

The interlinking and co-operation of the various centres and controlling powers is very intricate. To quote Wyllie: "By means of the various sense impressions a percept of each noun is formed; any hint will call this percept up. Audible speech does this, and the wonderful power of association permits the linking of a sound and a percept together, so that the word calls up the whole percept." Training and development of the perception centres are therefore very important.

(C) *Defects of the Outgoing Paths and Speech Apparatus.*—(1) The motor speech areas in the brain may have been affected by maldevelopment, or disease

or injury; or, apart from these conditions, the areas may never commence to act because there are no stimuli from the receptive paths.

(2) The powers of co-ordination play a very important part in the production of intelligible and connected speech. Not only have the three mechanisms to work together in perfect unison, but the parts of each mechanism have also to be co-ordinated. The muscles of the lips, tongue, throat, and palate have to perform the most skilled and delicately adapted movements for the production of a single word, and it is surprising that defective speech is not more common. Naturally one of the greatest speech defects due to want of co-ordination is stammering, where the three mechanisms do not act in unison.

The babbling of infants is very important for the development of speech, since it necessitates the use of most of the consonants and vowels, and thereby gives constant practice to the mechanisms. It is important to note that one of the early signs of mental deficiency is absence of babbling, and a common cause of speech defects in feeble-minded children is clumsiness of the movements of the mouth, tongue, and lips rather than any deformity.

Shortness of the *frænum linguæ* or tongue-tie very rarely has any effect on the movements of the tongue, and certainly is almost negligible as a cause of speech imperfections, though the parents often think that it is the whole cause of delay in the development of speech.

A defective pronunciation of a consonant might be an accurate representation of the imperfect impression received by the brain, but defective interpretation of impressions, though it may contribute to speech failings, is not of great importance in producing them; for, if we consider the fact that the deaf child can be taught consonants without the aid of hearing, it is evident that

imperfect hearing cannot be very important in causing speech defects.

Conclusions as to the causation of speech defects in feeble-minded children.—(1) Speech defects in feeble-minded children are most often due to defects of the higher mental faculties, such as will, attention, and memory, and to inefficient control and education of the muscles moving the speech mechanism in the mouth.

(2) They are not due to actual deformities of the mouth or other organs of articulation, nor to a perverted interpretation of sounds reaching the brain.

Nature of Defects.—The following statistics are based on the examination* of eighty-four feeble-minded children with defective speech. Many more, whose speech had on admission been defective, had so improved with tuition at the schools that they showed very few signs of speech troubles. This improvement shows how amenable many of these cases of speech defect are to teaching and training in pronunciation.

In testing the speech actions, drawings, or objects can be used to make the child pronounce the consonant required. This is better than asking the child to repeat the word after hearing it, because a child may, and often does, simply repeat the sound heard without understanding what he is saying, thus, if he has much power of imitation, concealing or masking his speech defect. Pictures and actual things make the child speak in the manner natural to him. General indistinctness of speech is also very common, and is usually due to a slurring of words.

The answers of mentally deficient children form a striking contrast to those of children with defective speech but normal intelligence, such as children with cleft palate. The former suffer from a paucity of ideas, the deficient play of the association paths making a great difference.

* See Appendix III.

The most striking abnormality of speech found in the feeble-minded is lalling, or the substitution of one consonant for another.

Wyllie in his classical work on Speech divides the consonants into a Physiological Alphabet as follows :—

TABLE IV

CONSONANTS

			Voiceless Oral.	Voiced Oral.	Voiced Nasal Resonants.
Labials	...	...	{ P	B	M
(1st stop position)	...	...	{ (W)	W	—
Labio-Dentals	...	...	F	V	—
Linguo-Dentals	...	...	{ Th ¹	Th ²	—
			{ S	Z	—
Anterior	...	...	{ sh	zh	—
Linguo-Palatals	...	...	{ T	D	N
(2nd stop position)	...	...	{ (L)	L	—
			{ —	R	—
Linguo-Palatals	...	...	{ K	G	Ng
(3rd stop position)	...	...	{ H or Ch.	Y	—
			{ —	(R)	—

Voiceless W and Voiceless L (in brackets) are rare. Former now only Scotland, and latter Wales. Burring (R) also bracketed.

VOWELS.

A—eh—ah—oh—oo (like Latin). Y and W are consonants, but near to I and U respectively.

Defective pronunciation of one or more consonants, excluding Th, is found in 32 per cent. of feeble-minded children. T is sometimes substituted for K, and D for G, by children who belong to the higher grades of the feeble-minded or by ordinary children, and it is such a striking defect that it is always noticed and seems much more common than it really is. Taking the consonants in the order in which they are found to be most often defective, we see that, as with normal children, Th is the consonant most often mispronounced, and next to that comes R. The most frequent substitute for R is Y (“yabbit” for “rabbit,” “yaining” for “raining”), and after Y, L, or “oo.” Several children

substituted L, R, and Y for one another almost indiscriminately, and this points to the conclusion that they had not sufficient sensation or muscular control to know which of the three they were going to pronounce.

Defects of Y were almost as frequent as those of R, but Y could only be tested as the first letter of a word. It was represented by R and L, or in other cases it was omitted or only pronounced with difficulty.

The fourth in frequency was S. In my cases T was by far the most common substitute for S and after that Ts. S is produced by allowing the air to pass over the dorsum of the tongue, while the tip is near the upper incisors, and should the tip become pressed against the incisors Ts or T is produced; hence their interchangeability.

The three main consonants of the third stop position, K, G, and Ng, come next. In these instances we have much more definite and consistent substitutions to deal with. K and G, if defective, are always represented by the corresponding consonants of the second stop position, while Ng is usually represented by some combination of N. Children with defective pronunciation of these consonants were, in every case except one, very bad speakers, showing defective pronunciations of several other consonants as well. Defects of K and G are usually found together, though perhaps G is the more frequently mispronounced.

Defects of Sh are common, T or some combination of T being the usual substitute.

L came ninth on the list.

The labio-dentals F and V are next. They are produced by the lower lip and the upper teeth, and are intermediate between the first and second stop position. B is the usual substitute for V at the beginning of a word, and D at the end, B and D being respectively the labial and linguo-palatal voiced equivalents of V.

F was usually represented by T, its linguo-palatal

equivalent. Defects of these consonants are the more easily explained when it is pointed out that they are produced between two great stop positions.

The remaining consonants were seldom defective.

The combined consonants are harder to test unless the child can read. Generally the defect can be traced to one of two forming the combination, and in this way a defect in the pronunciation of a consonant may occur only when it is in combination. L and R are very frequently affected in this manner. The substitution of Kw for Tw is explained by the much greater ease with which W follows on K than on T, and in the same way the easiest combinations to pronounce are those which run from the posterior positions to the anterior. The very common substitutes of "likle kekle" for "little kettle" are worthy of mention (50 per cent.), and "ss" in scissors in a frequent stumbling block also. These two peculiarities, though by no means confined to feeble-minded children, are not so often found in children of ordinary intelligence at the same age.

Feeble-minded children often drop the last letters through slovenliness or want of attention or through too rapid speaking. This fault, like the faulty pronunciation of double consonants, is more common in feeble-minded than in ordinary children.

A few careful lessons in the adjustment of the tongue and lips often produce a considerable improvement in the better class of the feeble-minded, but such improvement is too often only temporary. Patient and sustained practice is needed to produce any lasting effect, and it is essentially in will-power for such practice that the feeble-minded are lacking. The consonants needing the conjoined action of the dorsum, edges, and tip of the tongue for their production are most frequently defective. R, Y, Th, S, and Sh are all examples of this class, and these are shown by the tables to be the most commonly defective.

The substitution occurring in the second stop position is often almost indiscriminate, a fact which points to a want of co-ordination and control of the united action of the tongue muscles. From R it is a progressive transition to the indefinite "oo," then to Y, and finally to the burring or uvular R. The "oo" sound may become W if the lips are called into play. The labials are produced by simple movements, which can be seen and imitated, and consequently they are not often affected.

The faculty of imitation also helps the development of speech very much.

A lazy or clumsy child is only too likely to lack the precision to speak properly, and, just as some clumsy children improve much more with drill than do others, so some children improve in speaking much more than others. But the teaching has a great deal to do with it, and the methods employed must be adapted to the different children. Dr. Ireland has suggested that speech defects may be like those troubles that affect certain groups of limb muscles in the feeble-minded.

In many instances lalling closely resembles the babyish speech of a young child; still it is a much more definite affection, and ordinary children obtain control of speech at an age when many of the feeble-minded have not tried to say a word.

Stammering is a spasmodic arrest of utterance, and *Stuttering* is a spasmodic repetition of initial syllables of words (Guthrie). Stammering and stuttering only occurred in 2.4 per cent. of the feeble-minded children examined. Stammering is usually produced by spasm or by inco-ordination of the three mechanisms. For example the respiratory mechanism attempts to expel the air, but the vocal cords remain firmly closed, while all the time the oral (mouth) mechanism keeps repeating the movements needed for the pronunciation of the first consonant; an overflow of energy may take place, and

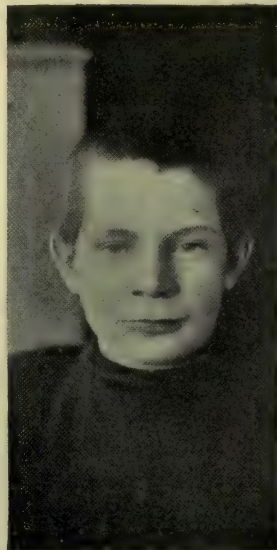
take the form of facial contortions or stamping, and finally when the air is released it is often expended in producing the voice for one word only. Stuttering is often due to imperfect respiratory control, and is often amenable to treatment by respiratory exercises.

To sum up.—(1) Lalling or substitution of consonants is a common defect in feeble-minded children, but it is often combined with general indistinctness of speech.

(2) Lalling is an important symptom of feeble-mindedness, though it may occur in children of average intelligence.

(3) It is generally due to inefficiency of the muscles of the oral mechanism, and can be remedied if the child has the intelligence to learn and the will to practise. Amongst the feeble-minded want of attention and want of intelligence contribute largely to the production of lalling, but deficient development of muscular control is the most important cause, just as it is the cause of clumsiness of the limbs.





3.

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PLATE VII. Cretinism. Figures 1 and 2 show E. S. before treatment in April, 1910. Height 2ft. 11½ins., weight 35lbs. 4 ozs., circumference of abdomen 20½ins. Fig. 3 shows the same child in August, 1910, after four months' treatment. Height 3ft. 1in., weight 30lbs. 14ozs., abdomen 19½ins. The mental condition is very much improved. Fig. 4 shows a cretin, who has improved with treatment, but remains feeble-minded.

CHAPTER VI

SPECIAL TYPES

A MINORITY (less than 10 per cent., see Chap. III.) of feeble-minded children belong to one or other of the Special Types, which all present certain peculiarities and characteristics, and are more common amongst the lower grades of mental defect, idiocy and imbecility.

The following types will be described :—(1) The Cretin; (2) the Mongol; (3) the Microcephalic; (4) Acquired forms, which are (a) the Paralytic or Cerebral Diplegic and Hemiplegic, (b) the Inflammatory (Meningitic and Encephalitic), (c) the Hydrocephalic.

(1) **Cretinism.**—Cretinism or congenital myxœdema is a condition due to the absence of the thyroid gland. This gland produces a powerful internal secretion, the absence of which gives rise to certain definite symptoms.

It is more common in hilly districts, such as Derbyshire, where there are isolated villages, but a certain number of cases arise in all parts of the country.

Characteristics (see Plate VII.).—The cretin is much coarser in every way than the normal child. This coarseness is due to the collection of semi-fluid material just underneath the skin, which gives the child a bloated appearance. The main characteristics are thick coarse features, rough dry skin, a harsh voice, a large clumsy tongue, dry, poorly-nourished hair, swellings resembling pads over each collar bone, a protuberant abdomen with a low umbilicus, short square hands, and lastly, what is often the most striking feature, great stunting of the

body and limbs. As the thyroid gland is wanting, the trachea can usually be felt very clearly. There is usually marked constipation. Mentally a cretin is very listless and heavy, having as a rule greatly diminished power of independent thought or action. The child is in a condition of hebetude or apathy, and if untreated becomes a hopeless imbecile, docile enough but quite unfit to form a useful member of the community. Slighter forms of cretinism are met with, and it is quite possible for illness during infancy or childhood so to affect the thyroid gland as to derange its function and cause mental dullness with stunting. But true feeble-mindedness is not likely to be caused in this way.

Prognosis.—The future of the cretin is not always a bright one, even though efficient treatment is commenced early. Most of them improve wonderfully, and are transformed from gross, ugly creatures into more or less intelligent looking children; but though they show such a marked reaction to treatment, the average case never gets beyond a certain point, and is feeble-minded for the rest of his days.

Of course these children are not likely to show the stigmata of degeneration, or to have family histories of hereditary mental trouble.

Treatment.—The effect of treatment can be seen in Plate VII., and consists of giving doses of extract of sheep's thyroid to take the place of the child's missing thyroid secretion. It must necessarily be continued for life. The remedy can be given as tablets, beginning with small doses of 1 grain and increasing to $2\frac{1}{2}$, 5, or more grains three times daily, or the liquid extract may be used.

For a fuller account of the condition the reader is referred to text-books of medicine or children's diseases.

(2) Mongolian Imbecility.—Dr. Langdon Down first described the type of mentally deficient child known as Mongolian (Plate VIII.). All these children bear a

curious featural resemblance to one another, so marked that a Mongol is easily recognised at a distance by a skilled observer. The features are like those of the Mongolian race, the main characteristics being the obliquity of the eyes and eyebrows and the depressed bridge of the nose. Anyone dealing with large numbers of patients at a Children's Hospital will see quite a number of Mongols, but since many of them die in infancy, they are not common amongst older children.

Causation.—Mongolism, though a very definite type, is probably a failure of development like the other forms of primary feeble-mindedness, examination of the brain showing irregularity and incompleteness of formation.

The condition seems to be in many cases the result of an exhaustion of the reproductive powers of one or other of the parents. A few cases are met with where the parents are young and strong (see footnote), but by far the majority of the cases are the last of a large family, the parents having reached the age of 40 or thereabouts.

The following is the history of a case under my care :

F. C., æt. 8 months. Family history negative for neuropathic taint and for tuberculosis. Father youngest of his family, mother eldest of hers. Mother had bad health during this pregnancy and was very depressed. There have been twelve pregnancies:—(1) Girl, well aged, 23; (2) boy, well aged, 21; (3) boy, well aged, 19; (4) boy died at 6 years old; (5) boy, well aged, 15; (6) boy, well aged, 13; (7) girl, well aged, 11; (8) boy, well aged, 9; (9) girl, well aged, 7; (10) boy, well aged, 5; (11) boy, well aged, 3; (12) premature and still-born; (13) F.C., a Mongol.

The list of family histories and ages of parents collected from various sources and given below,* shows

*Of 63 Mongols that have come under my own observation in Manchester, 44 were the last children of their respective families and 15 the last but one. Four were the first children; all the four parents of two of these four were over forty years of age, and of the four parents of the other two, three were twenty-eight and one twenty-six.

In 132 families, each containing a Mongol, there were in all

how frequently the Mongol is the last child of a large family, and how often the parents are of advanced age; it also points very strongly to the fact that the Mongolian type of mental deficiency is due to an exhaustion of the reproductive powers of one or other or both of the parents. There is no evidence to show either that syphilis in the parents, or that dissimilarity in the age of the parents, have any effect in causing this form of mental deficiency.

Pathology.—As Dr. Shuttleworth has suggested, the various deformities point to a generally unfinished state, the poorly developed ears, the lax ligaments and hypotonia of the muscles, the not uncommonly incomplete condition of the heart and brain all indicating a state of unfinished development. The brains of Mongols seem to differ considerably, the convolutions being usually primitive and much more simple than is normal; some show gross signs of arrested development or of smallness or simplicity of certain parts, others show marked changes in the cerebral cortex, while others

827 children, giving an average of six to each family. Of these 827 children only one was feeble-minded apart from the Mongols. It is very rare indeed to find another mentally defective child in a family that contains a Mongol, the case quoted above being the only instance known to me. It is interesting to note that one instance of Mongol twins has been reported and several of twins, one of which was a Mongol. (Shuttleworth, quoted by Thomson.)

Of 336 cases collected from medical literature, 198 were the last children in their respective families, and 44 the first. Of 132 Mongols 14 were the first born, 14 second, 39 third, fourth, and fifth, 34 sixth, seventh, and eighth, and 31 ninth to fourteenth. The Earlswood tables show that 22 per cent. belong to the first half and 78 per cent. to the latter half of the families.

Of 27 mothers and 19 fathers of Mongols 77 per cent. and 68 per cent. respectively were between the ages of thirty-seven and forty-four, and some were over the age of forty-four.

In all the cases except one, where there was a reliable family history, it was negative for any neuropathic taint, and as stated above in one case only was there another mentally deficient child in a family containing a Mongol—facts which make it improbable that this form of mental deficiency is due to an inherited taint.

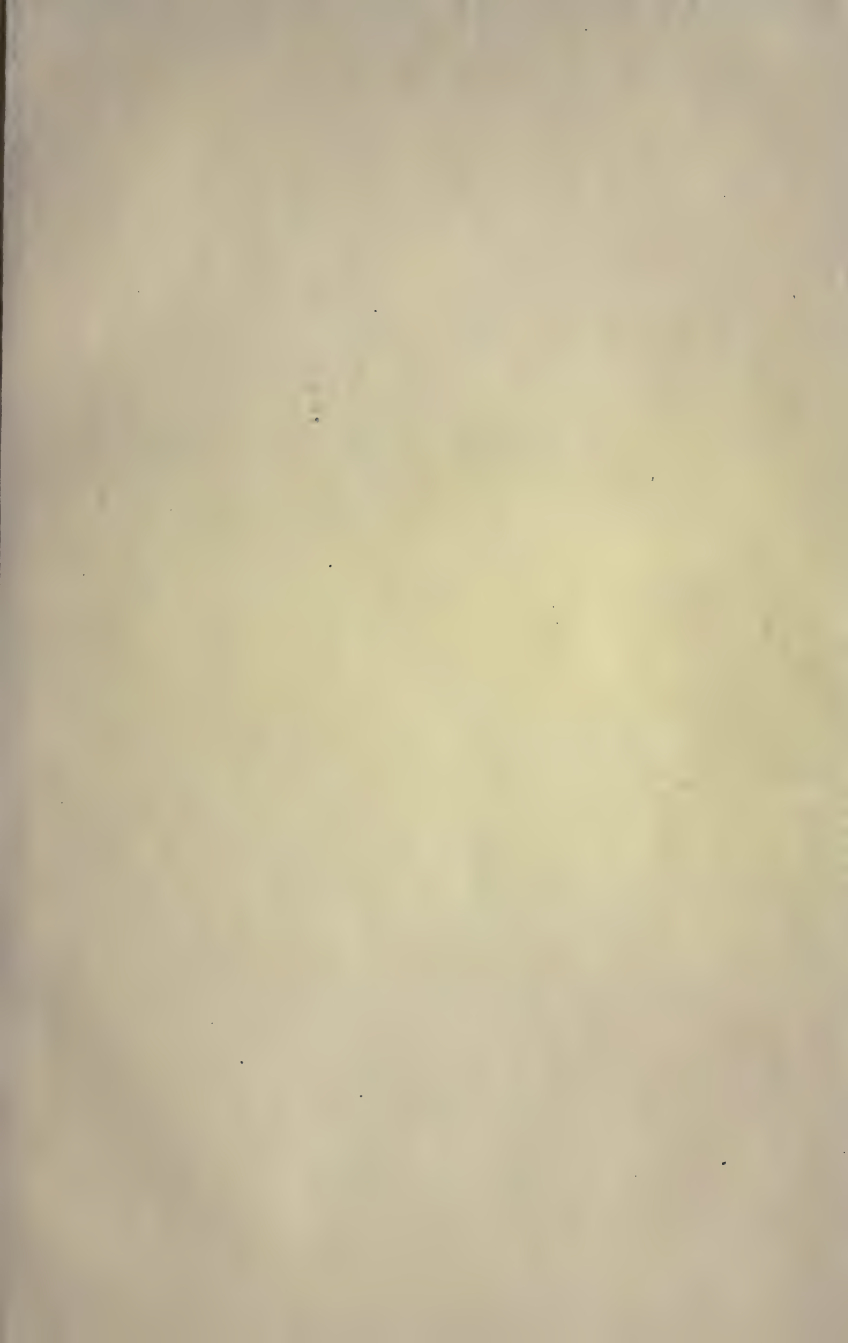




PLATE VIII. Feeble-minded Children of the Mongolian Type.

again show few definite abnormalities.* Probably the deformities tend to be greater or less with the greater or less degree of Mongolism.

Deformity of the skull exists because the brain is small and does not develop normally, and just as the bones of the skull of the microcephalic close early because the brain is so small, so premature closure of the bones of the base of the cranium, if present, is due to imperfect development of the brain and not to primary deformity.

In many Mongols the thyroid gland is smaller than normal, but the pituitary body seems to be unchanged. The majority of cases do not show any changes of the ductless glands, and there is nothing pathological to indicate that Mongolism is anything but a failure of development.

Characteristics—Physical and Mental (see Plate VIII.).—The physical characteristics are numerous. There is the peculiar obliquity of the orbits, already described, and this, combined with the depressed bridge of the nose, a deformity said to be due to premature joining of the bones at the base of the skull, gives to the face of the Mongol its characteristic appearance. Protrusion and sucking of the tongue is very noticeable in some Mongols, especially in infants. Epicanthic folds are often present. The heads are small and round, being deficient behind, so that the skull ascends very steeply from the back of the neck. A typical Mongol seems to have an under-development of the bones in the region of the nose and upper jaw, so that the face has a pinched-

*I have examined the brains of four Mongols, and found that three of them showed simplicity of the convolutions and a rounded appearance. The fourth (that of a Mongol of marked degree, who died in infancy) showed gross abnormalities and primitive type of the convolutions of the cerebrum and smallness and underdevelopment of the cerebellum.

One of these cases died of general tuberculosis and had tuberculous meningitis.

up appearance and the lower jaw appears to be too big and to protrude laterally. The ears are generally small and crumpled, the upper part of the pinna overhanging and protruding. The hair is often thin and sparse but may be normal. The cheeks of those who survive infancy are usually rosy and plump, the outline of the lower jaw being rounded; this gives the child a look of robust health. On the other hand many Mongol infants are pale, thin, and wasted and do not survive long, being classed as wasting babies and never being recognised as Mongols. In older cases the skin is coarse, and a growth of downy hair is often present on various parts of the body. The hands are square with short fingers, the little finger being incurved, and the feet are also square; the joints and muscles are sometimes very loose, permitting of unusual attitudes; furrows are very numerous on the palms of the hands and on the tongue, those on the tongue being in later life often extraordinarily well marked; the palate may be high or V-shaped; the eyes are often defective, and many Mongols are brought at first to an Eye Hospital, since, in addition to the obliquity of the palpebral fissure, the tendency to eye-rolling is sometimes very noticeable; squint or nystagmus may occur, too, and in many cases (62 per cent.) congenital cataract is present. (Ormond.)

Congenital heart deformity is quite common in Mongols, and they should always be examined for bruits or enlargement of the cardiac dulness. Dr. Still states that congenital heart disease is found in 5 per cent. of Mongols. Mongols show a lowered resistance to cold, many of them having cold extremities, which become blue on exposure, a phenomenon that may be quite independent of heart trouble. This general lowered resistance renders Mongols liable to infection, to tuberculosis, to pneumonia, and to bad effects from operations. They are also liable to sudden death, as in a case under my care in hospital, who suddenly developed dark-

red patches on the trunk and limbs, a high temperature, and died in a few minutes.

Mongols also tend to be much below the average in height and weight. A Mongol of 8 or 9 years often resembles a normal child of four or five in appearance. This characteristic is also noticeable in infant Mongols, especially in those who do badly, for they remain much under the average weight and length. The small weight might be due to wasting, but the failure to grow in length is a developmental defect. One of my cases, aged 1 year and 2 months, resembled in length, weight, and appearance a poorly nourished baby of 3 months.

Mongols are very difficult to teach. They have very good powers of mimicry, and will imitate animals or sometimes persons very closely, being in this way often very amusing to the other children. They are usually fairly happy and contented, but many of them are of low grade, and not very many are found suitable for treatment as feeble-minded; they are usually of the imbecile grade. Another curious point is that they are very fond of music, more so than are other children.

Prognosis.—The prognosis is not good. Quite a large number die in infancy, being classed as wasting babies, and thus escaping recognition as Mongols. Those who live to a later age and survive the malnutrition stage show a weakened resisting power to disease, and therefore succumb readily. Pearce and Rankine, judging from 50 cases, give the average age at death as $14\frac{1}{2}$ years.

Tuberculosis, occurring most commonly in its pulmonary or miliary forms, is responsible for the death of a very large proportion of cases. Broncho-pneumonia also may easily be fatal. Probably the largest proportion of Mongols die in infancy or very early childhood of malnutrition and atrophy. If congenital heart trouble is present, the child has a still weaker hold on life.

Apart from physical infirmities, the outlook as regards the future mental state is not good. The mental condition improves very little, and, although these children are often happy and look bright, their mental level is usually that of an imbecile and may be lower still. There are slighter cases with very little defect, but the majority are low grade.

Treatment.—Occasionally a combination of Mongolism and Cretinism occurs, and in such cases treatment with thyroid extract improves the child mentally and physically to a certain point. There are no special measures for improving Mongols, but every effort should be made to give them some occupation that interests them even if it is of the simplest kind. The eyes should always be examined and defective vision corrected by spectacles.

(3) *Microcephaly.*—In this form of mental deficiency the brain is very small, so that the sutures and fontanelles of the skull close early and the circumference of the skull is a good deal smaller than it should be. Smallness of the head, within certain limits, does not necessarily mean less intellect, many children with small heads being very clever; but in microcephaly the head is extraordinarily small.

The normal head should be at least well over 19 inches in circumference in a school child. The following are actual measurements from cases of microcephaly at various ages :—

At 3 months 12 inches; at 3 years 15 inches; at 9 years 15½ inches.

Causation.—Unlike Mongolism, Microcephaly often affects several children in one family, sometimes affecting all the children. In some instances one or other of the parents has had a very small head; in others there is a definite history of descent from a feeble-minded individual.

Murdoch records a case in which a family of five microcephalic children was the progeny of two of the

descendants of a feeble-minded woman. This woman had had four feeble-minded girls, all of whom had had feeble-minded children. The descendants of the original feeble-minded woman included more than 100 feeble-minded persons, amongst whom was the family of five microcephalics. The father of these was feeble-minded but not microcephalic.

The following are notes on the history of a family containing microcephalics, some of whom have been under my observation in Manchester:—

Father and mother of good mental powers and aged 35 and 34 respectively: both temperate: children 8 in number. (1) Boy, alive, aged 12, good mental powers; in Std. V. (2) Boy, alive, aged 10, Microcephalic in Royal Albert Asylum, Lancaster. (3) Girl, alive, aged 8, fair mental powers; in Std. II. (4) Boy, alive, aged 6, Microcephalic. (5) Boy, stillborn, Microcephalic. (6) Boy, died, aged 3 months, Microcephalic. (7) Girl, died, aged 8 months, Microcephalic. (8) Girl, alive, aged 6 months, Microcephalic. After careful enquiry it was found that there was no history of Insanity, Fits, Mental Deficiency, Tuberculosis, or Intemperance either in the parents and their brothers and sisters or in the grandparents.

It is noticeable that out of the eight children born to these parents six were microcephalics.

Thirty-three per cent. of my cases showed a family history of mental trouble.

Pathology.—The brain is much smaller than the average, and shows simplicity of convolutions; beyond this there is nothing especially characteristic of the microcephalic brains, though some of them show major defects, such as extreme smallness of the cerebellum. The skull closes early because the brain is so small; consequently the child usually has a narrow receding forehead and a more or less pointed skull cap.

The face, body, and limbs are usually well developed, and, except that, in the more extreme cases there is often spasticity and stiffness of the limbs, a microcephalic child shows little physical deformity other than that of the head.

Characteristics (see Plate IX., Figs 1 and 2).—The appearance of these children is very characteristic, the skull being so small and so obviously out of proportion to the face that there is little difficulty in recognising the condition. In consequence of the small size of the skull there is usually a history of rapid termination of labour at the birth of the child. Some of the children suffer from convulsions, others show the spasticity or stiffness of the limbs referred to above, this stiffness being most common in the lower limbs. Constipation is often a troublesome feature. Both the spasticity and the constipation are probably due to defective nervous control from under-development of the upper motor neurons.

Though often amiable and bright, microcephalics are subject to violent and passionate outbreaks, during which they may do damage. Some cases are very restless and quick in their movements, showing a curious resemblance to a bird. Like other mentally defective children they are late in learning to walk and talk, and many of them never learn to talk at all, but do no more than make inarticulate sounds of pleasure or pain.

The cases which come under the classification of feeble-minded are the best of the microcephalics. For this reason the characteristics seen in the more marked cases, such as stiffness of the limbs and inability to talk, are not present in cases seen in special schools or colonies.

Prognosis.—The prognosis as regards life is good, but the microcephalic feeble-minded are usually of low grade, and, though often imitative, are difficult to teach.

Treatment.—Treatment directed to curing the condition is of no avail. At one time the operation of craniectomy or of opening and raising the skull bones with the idea of giving the brain room to develop was tried in a number of cases but quite unsuccessfully, and to argue that the brain does not develop because the

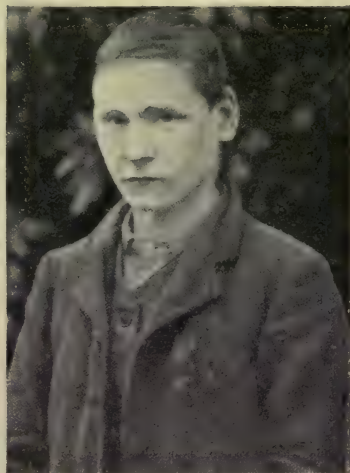
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PLATE IX. Microcephalic (Figs. 1 and 2), Hydrocephalic (Fig. 3) and Morally Defective (Fig. 4) Types.



skull is too small is to put the cart before the horse. What really happens is that the brain is abnormally small from the first, so that the skull does not attain the right dimensions. Of course, by treatment, training, and teaching a fair amount can be done to develop the mental powers, but there is no operation or surgical measure which can affect in any way a brain which is small because of the failure of the formative processes that go on while the child is still in utero.

(4) **Acquired Forms.**—Acquired forms are due to causes acting during intra-uterine life or early childhood on a brain that, apart from these causes, would have developed normally. Nearly all these cases can be classed as being due to inflammatory lesions.

The several acquired forms of feeble-mindedness are (a) the Paralytic (Cerebral Diplegic and Hemiplegic), (b) the Inflammatory, and (c) the Hydrocephalic.

(a) **PARALYTIC*** (Cerebral Diplegia or Hemiplegia).—In Diplegic cases all the limbs or both legs may be affected: in Hemiplegic cases only one side of the body is deformed.

In Paralytic cases there has been some destruction of part of the upper motor neurons or of the conducting paths of the brain during intra-uterine life or at birth, either by hæmorrhage or by other conditions such as injury or inflammation. In some there is a severe lesion during intra-uterine life, so severe that the child would not have survived if it had been living a separate existence at the time the lesion occurred: in others the destructive process is not so severe, and may occur at birth without causing the death of the child; in others again there is no definite evidence of a destructive lesion but only poor development of the nerve cells of the upper motor neurons (Shaw). Whatever the nature of

* Dr Fernald holds that injustice is often done to paralytic feeble-minded, who, being much hampered by physical defect, may be graded with children of a lower mental class than themselves and miss the training which is due to them.

the pathological lesion the effect is much the same, because the nerve cells or the nerve processes of the upper motor neurons are rendered defective to a greater or lesser extent, and a stiff or spastic paralysis with accompanying mental deficiency is the result.

Causation.—There is often a history of difficult birth in these cases. Obstruction to the birth of the child causes prolongation of labour, which may give rise to effusion of blood on to the brain, since the blood vessels of the child's brain are unable to resist the strain of continuous congestion and pressure. This shows how valuable is the use of instruments when labour is unduly prolonged. Again, there may be a history of injury to mother and child during pregnancy or of severe illness of the mother.

Characteristics (see Plate X.).—A typical case of Diplegia of moderate severity shows stiffness and rigidity of the limbs, the legs being most commonly affected; both sides are equally bad and the reflexes are increased. The condition is a typical spastic paralysis of greater or lesser degree. This stiffness leads to considerable awkwardness and limitation of movement, and in some of the worst cases of cerebral diplegia there is even spasm of the back muscles, causing arching of the spine. Speech may be affected, and both walking and speech are late in developing.

Mentally, cerebral diplegics may be fairly good compared to other feeble-minded children, and though they are often very excitable and emotional, as in Case I. (J. D., p. 111), they may be comparatively intelligent, teachable, and capable of mental development. The brain has been fully endowed, but its development has been arrested. However, they are usually at least feeble-minded, and are dependent on other persons on account of both their mental and physical infirmities.

Cases of microcephaly may show a similar stiffness, but the smallness of the head serves to distinguish



1.



2.



3.

PLATE X. Feeble-minded Children of the Paralytic (Hemiplegic) Type. Fig. 1 shows the small size of the affected limb in four cases of Hemiplegia. Figs. 2 and 3 show athetoid, involuntary movements in the affected arm of the case on the left of the group in Fig. 1.



the two conditions; moreover the microcephalic with spasticity exhibits much poorer mental power than a feeble-minded cerebral diplegic.

Paralytic cases show a great tendency to slaver, and there may be a constant stream running down the child's chin and wetting his clothing.

In Hemiplegia only one side of the body is affected. The arm and leg are usually paralysed together, but the face may also show evidences of one-sided paralysis. The affected limbs are stiff and much weaker than those of the other side, and are generally smaller also, as they have not grown at the same rate. This characteristic can be seen in Plate X., which also shows the curious involuntary twistings and contortions of the affected parts, known as athetosis.

In both diplegia and hemiplegia there is a tendency to the development of contractures of the muscles on the flexor surface of the limbs, which may be fixed in a bent position in consequence.

Deformities of the head corresponding to the site of the lesion occur. Thus a child with hemiplegia of the right arm and leg may have smallness of the left side of the head.*

Treatment.—There is no specific treatment either operative or medicinal, for this condition. Some cases improve a little under potassium iodide and mercury.

Regular massage and drill aiming at educating the nerve paths to the muscles and the nerve centres from which impulses arise, is of considerable value, and, since these cases may possess patience and will-power much in advance of the ordinary feeble-minded child, they may learn to do work needing fine adjustment and skilled movement.

Case I. J. D., æt. 4 years. Cerebral Diplegia. Cannot walk or talk, though attempts a few words; always slobbering; obstinate

* The left half of the brain controls the right side of the body and *vice versa*.

constipation; head 20 in. in circumference; difficult birth, prolonged and instrumental; child had convulsions at birth; legs spastic and weak; reflexes increased. Under regular massage and exercises designed to educate muscular control the child is improving and can now walk across the room, but tends to get excited and hurry, when he falls. His mental condition is improving with training, but he will always be dependent on others.

Case II. H. W., æt. 7 years. Hemiplegia left side. Can walk unsteadily, the left leg dragging at times and the left arm being bent at the elbow and not under control; saliva always running from his mouth; head $18\frac{1}{2}$ in. in circumference; paralysis present from birth; left arm and leg weaker and thinner than right; left hand contracted and fingers bent inwards; mentally very vacant and poor.

(b) INFLAMMATORY (Meningitic and Encephalitic).—Inflammatory conditions such as meningitis and encephalitis may cause either (1) retarded mental development by sense deprivation, which gives rise to deafness or blindness or a combination of the two; or (2) mental deficiency by the effects produced on the brain by the inflammation. In the sense-deprivation cases there is not real mental deficiency, and these cases can develop mentally as soon as the receptive paths to the brain centres are opened. Proof of this can be found at the schools for the deaf and blind and in the example of Miss Helen Keller, who, though deaf and blind from very early infancy, is now the author of two well-known books and whose intelligence is of a high order.

But when the inflammatory changes actually affect the brain and cause sclerosis or scar formation, there may be real and permanent mental deficiency. These inflammations may occur (1) during intra-uterine life, as is shown by pathological evidence; (2) during infancy and childhood either from postbasic meningitis due to the diplococcus intracellularis, or to pneumococcal meningitis, or from acute encephalitis causing destruction of the grey matter of the brain; and (3) may follow some of the acute infectious fevers, such as scarlet fever or measles. Meningitis is not a common cause of mental

deficiency, though some alienists hold that intra-uterine meningitis is responsible for a good many cases.

(c) HYDROCEPHALIC.—This is the condition commonly known as “water on the brain.” The brain is a hollow organ, the cavities in each hemisphere being known as ventricles. The fluid in hydrocephalus may be (1) in these ventricles, in which case it distends them and compresses the brain; and rarely either (2) between the skull and the brain, in which case it presses on the brain; or (3) both inside the ventricles and between the brain and skull.

The pressure of this fluid on the brain may ultimately cause feebleness of intellect if the child survives, but hydrocephalic cases are not at all common in the feeble-minded; they are seen more often as hospital patients. Congenital hydrocephalus does occur, but the child is not necessarily weak-minded. There is little difficulty in recognising hydrocephalus (see Plate IX.), for the head is very large, being often 25-27 inches in circumference, and the skin may be so tightly stretched in a marked case that the upper parts of the whites of the eyes are visible, while the pupil is hidden by the lower eyelid. A word of warning should be given against mistaking the large bossy square head of rickets for hydrocephalus. The congenital condition known as spina bifida may be followed by hydrocephalus. If the child survives, it may be paralysed and mentally defective, but these cases again fall more naturally into the province of hospital treatment.

Treatment.—The medical treatment of these forms of feeble-mindedness, when there is real brain mischief, is of little value. The children remain permanently of feeble intellect, though they can be taught a fair amount. Potassium iodide is the only drug that may be beneficial, but the inflammatory mischief is usually of old standing and is not likely to react to medicine.

In the cases of sense-deprivation there should be great

improvement with medical treatment and proper methods of teaching, the condition being merely backwardness due to want of stimulus.

In other cases where there is mental deficiency as well as deafness or blindness, the child may appear much worse than he really is because he is both backward and feeble-minded; it follows that some cases improve beyond expectation.

OXYCEPHALY or steeple skull. ATELEIOSIS, or continued youth, a type to which Tom Thumb belonged, and PROGERIA, or premature old age, are too rare to merit a special description here.

Amongst my hospital cases there are records of one case of JUVENILE GENERAL PARALYSIS, but this is a progressive disease and does not concern us here.

MORAL DEFECTIVES are described in Chapter IV., (p. 80), because their characteristics are mental rather than physical.

Finally, let it once more be emphasised that only a small minority of feeble-minded children belong to the special types.

CHAPTER VII

DIAGNOSIS

IN making a diagnosis of the mental condition of the child brought up for admission to a special school or institution for the feeble-minded, the medical officer has first to decide whether the child is below the normal mental level, and, if this is so, he has to place the child in one of three classes : (1) Dull or backward, (2) Feeble-minded, (3) Imbecile or Idiot. Certain "border-line" cases have to be admitted and watched before a definite diagnosis can be made.

Imbecility and Idiocy have already been defined. The term Backward Children includes two main classes :—

(1) Intelligent children, who for some reason are not up to the average standard of knowledge; usually either because they have come to school late or because they have some physical defect, such as deafness or short-sight, which renders them unable to reap the same benefits from teaching as do the other children. These cases are in low standards because they cannot have individual and special teaching.

(2) Dull children, in whom the mental dulness is due to physical causes such as disease, epilepsy, or bad environment, the effect of which is to impair the activity of the brain. These children are in low standards because they need treatment directed to improving the nutrition and tone of the body and brain or the removal of dulling factors such as epilepsy.

Of the children admitted those dull or backward may

improve with individual and special treatment, and can then be discharged; and those of the lowest grade may be found to be too bad for treatment and sent to other places for care.

In this chapter we shall discuss the points which help us to choose cases suitable for treatment and training as feeble-minded.

It is very important to take exact records of each case at the time of examination, and to continue these while the child is under observation. To be of any value, such records must be full and definite. Histories or notes which leave any doubt are practically useless, and only that information which comes from a reliable source should be accepted. For instance, many mothers will give a history of convulsions in several of their children, but a more careful questioning will show that the fits have only been terminal events in some other illness, or that they have not been real; others describe as "inward convulsions" what were probably griping pains and not fits at all. In the same way family histories of consumption or alcoholism must be verified before they can be used for statistical purposes. These warnings are not meant to deter anyone from taking records. On the contrary, reliable records are urgently needed, and are most valuable for scientific research and progress in this subject; but it cannot be too emphatically pointed out that the utmost care must be exercised.

The following apparatus is necessary :—(a) A measure marked in inches and centimetres and made of tape, not of wire or steel; (b) a machine for measuring heights and weights; (c) case sheets and boxes for filing; (d) a stethoscope; (e) a simple tongue depressor, which should stand in a bowl of antiseptic lotion, or a few firm strips of wood, a fresh strip being used for each child; (f) a good firm table on which are a number of (g) coloured wools or papers, the colours represented

being *definite* shades of red, blue, black, white, yellow, and green. It is a good thing to have three or more samples of each colour so that the child can be asked to match them if he does not know their names, and each sample of each colour must be of the same shade; (h) counting beads, various small toys, or models of animals and some bricks or slabs of wood in sufficient number for them to be used for addition and subtraction; (i) a pencil and paper for the child to write on, and various small objects or drawings useful for testing the child's knowledge and powers of speech. Great care must be taken to choose drawing or models which really give a good idea of what they are meant to represent, and allowances must be made for the fact that the child may not have seen many things or animals which are quite common in the experience of other children; (j) a set of models similar to those shown in Plate XII. The method of using them is described on p. 272; (k) a school primer, and some sheets containing large letters and simple drawings of animals; the latter are valuable for testing the child's sight, the ordinary test type not being of much use because many of the children do not know their letters.

With this apparatus it is not difficult to estimate the amount of the child's knowledge, and to gain some idea of his mental capacity. Fuller and more elaborate tests (see Appendix IV.) may be undertaken later, but these are chiefly useful as a record of progress, and are difficult if tried before the child has become accustomed to be tested and examined. In some American institutions there is a psychological laboratory, in which a trained psychologist carries out regular tests.

One or two other points are important.

In the first place each case must be examined separately; nothing can be more detrimental to a successful examination than to have several sets of relatives and children looking on.

The room should be cheerful, well-lighted, and warm. Bright objects, such as a metal inch measure or a shining tongue depressor, which may frighten or upset the child, should not be used. It must be remembered that it is a considerable ordeal for a child to be brought into a strange room and to be confronted with three or four serious-looking people. Though some feeble-minded children are too dull and heavy to mind this, the majority are by no means so constituted, and unless the doctor can gain their confidence he will not be able to obtain satisfactory results from his examination. A little time has to be spent on taking the history from the parents, and during this time the child should be allowed to move about apparently unnoticed but be quietly watched. The doctor should then ask him the names of simple objects or let him match the bricks. Once his confidence has been gained it is a more easy matter to find out the capacity for writing or reading or attempting sums. The measurement of the head and the inspection for physical stigmata, the examination of the heart and lungs, and finally that of the throat and nose can now be made. It is better to reserve until the end those examinations which cause most discomfort or are most likely to upset the child. These details may seem trifling, but they are none the less important, and have a good deal to do with the success or failure of the examination.

The following points should be recorded on a case sheet such as that shown in Appendix V. :—

- (1) The family history.
- (2) The health of the mother during pregnancy.
- (3) The personal history of the child, including troubles at birth and illnesses and *the opportunities for mental development*.
- (4) The age at which the child began to sit up, walk, talk, and to learn to control the bladder and bowels.
- (5) The circumference of the head, the presence or absence of physical stigmata, and whether the child belongs to any one of the special types.
- (6) The height and weight.

- (7) The speech.
- (8) The sight.
- (9) The hearing.
- (10) The carriage, gait, and ability to join in games.
- (11) The general appearance, bearing, and expression.
- (12) The memory, attention, will, and temperament.
- (13) The powers of reading, writing, calculation, and manual skill, and the Standard in which the child is at the time.
- (14) The report as to the way in which the child responds to surroundings and how he is treated by other children.
- (15) The teacher's report as to progress at school.
- (16) The parent's report as to usefulness or otherwise in the home or for going errands.

From a consideration of these points one can usually come to a conclusion as to whether a child is feeble-minded and suitable for admission to a special school or institution or not. A certain number of cases have to be admitted on probation, but these should not form more than a very small proportion of all cases.

Most of the headings enumerated above have been or will be considered in other chapters, but a brief summary of the important points connected with each will be of advantage.

(1) A *family history* of insanity, epilepsy, or mental deficiency strengthens the possibility of the child's being feeble-minded; histories of tuberculosis, alcoholism, or syphilis are not so important, though in my experience tuberculosis is often a marked feature of the family histories of these children. A family history of deaf-mutism should be recorded. Near relationship of parents and the place of each parent in their family should be noted (see p. 181).

(2) The health, bodily and mental, of the *mother during pregnancy* should be noted, because a history of physical illness or mental stress is often found. A history of mental trouble may point to weak mental powers in the mother. Though such conditions probably do not of themselves cause feeble-mindedness, and though it is doubtful whether they have much contributory effect, still it cannot be denied that ill-health

of the mother during the period of développement and growth of the foetus, which is dependent on her blood for nourishment, may have some contributory effect in causing abnormal development. Hence the importance of obtaining as much reliable statistical evidence as possible on the point.

(3) The *personal history* of the child may show some illness or accident, which has acted as a determining factor in producing what we have called secondary feeble-mindedness. In the same way injuries caused by prolonged pressure and congestion of the head at birth may have a similar effect. It is not uncommon to obtain a history of difficulties at birth or of injury or illness acting later; but too much importance must not be attached to these factors because parents are very prone to attribute their child's failings to some such cause. Because they are questioned they often discover and exaggerate some trivial illness or accident. Actually about 10 per cent. of cases of feeble-mindedness are due to such secondary causes.

It is most important to find out what *opportunities for mental development* the child has had. Physical illness may have kept him from school or some defect such as stammering, deafness, shyness, or nervousness may have prevented his making full use of his opportunities and have produced a state of backwardness or retarded mental development. On the other hand, if a child has not improved under careful and individual teaching, the future mental development is not likely to be good.

(4) The *age at which the child began to sit up, to walk, to talk, and to develop control over the bladder and bowels* should always be ascertained. They are very valuable points. Feeble-minded children begin to walk and talk much later than ordinary children, speech being more delayed than walking. An ordinary child should sit up at the age of nine months at least, and

should commence to walk and talk at twelve to fifteen months. Control of the bladder and bowels should develop during the second year in a well-trained child, but it is very late in developing in the mentally defective partly because the child learns everything with difficulty and possibly because sensation is defective. Other conditions such as illness or disease may be the cause of delayed development of bodily and mental control, but, if such conditions can be excluded, the above defects are very suggestive.

(5) The *physical characteristics and general configuration* of the child should be examined. It is often possible for a practised observer to tell at a glance that the child is mentally deficient. There should be little difficulty in recognising definite examples of any of the special types described in Chapter VI., but some of the less definite examples are not easy to classify.

The circumference of the head is a very valuable sign, and the absence or presence of other physical stigmata of degeneration should be noted. We have seen that the feeble-minded show the physical stigmata of degeneration more often than do children of normal intelligence, while very often a combination of two or more stigmata is found to occur in the same child; but it must be distinctly understood that such stigmata are not in themselves evidence of mental instability. Their presence simply points to the inheritance of what is known as the neuropathic diathesis.

The most important stigmata of degeneration are: (a) asymmetry and other deformities of the head; (b) epicanthic folds at the inner angle of the eye; (c) abnormalities in the shape of the external ear; (d) abnormalities of the palate and dental arch; (e) an incurving of the terminal joint of the little finger. Many of these children also have a coarse skin, and are liable to acne and other eruptions.

(6) Comparisons of the *heights and weights* of feeble-

minded children with those of ordinary school children show that the former are smaller and less well developed physically. This is partly due to the fact that they do not have the same opportunities for exercise and play, but is chiefly an innate defect. The difference is too marked to warrant the conclusion that want of exercise is the only cause; and moreover the difference increases with age.

(7) Defective *speech* is very common, and may be due to various causes referred either to the central powers in the brain or to poor control over the muscles or to defective sensation of the mouth and tongue. Lalling or substitution of easy consonants for hard ones is the most striking defect.

(8) The *sight* must be tested to see whether there is any major defect which might possibly account for delayed development of the mental faculties. Backwardness may be due to marked degrees of defective sight, in which case the child will soon improve with treatment; but backward children are not feeble-minded. Defective eyesight may, however, enhance the original dulness of a feeble-minded child, so that allowance should always be made for it, if it is present.

Inability to name colours is often found but actual colour-blindness is rare, and the majority of children can pick out and match similar colours.

(9) The *hearing* powers must be carefully tested. This is not so easy as might be thought, because want of attention or stupidity may simulate deafness very closely. The test I usually try is that of dropping an article such as a bowl, a penny, or a rattle on to the floor behind the child when its attention is directed elsewhere, great care being taken to be sure that the child does not see the article dropping or any movement of the person dropping it. However, a child with a want of attention so great as to simulate marked deafness is usually of too low a grade to be classed as feeble-minded.

Gestures and signs must be avoided. A deaf child of normal intelligence is easily distinguished from a feeble-minded child by a few simple tests, and even those deaf children who, owing to their inability to communicate with others, have been neglected and have become queer and unresponsive can usually be distinguished from feeble-minded children. This question is discussed more fully on page 129.

(10) Defects of the *general balance and carriage*, a shuffling gait, slouching, and clumsiness are very common, being due to under-development of muscular control and lack of mental and physical tone.

(11) The *general appearance, bearing, and expression* are valuable signs, and, as previously stated, it is often possible to tell at a glance that the child is feeble-minded. The expression on the face, the little mannerisms, the lack of featural and muscular control, and the general aspect of feeble-minded children cannot be defined exactly, but to a practical observer there is something very characteristic about these points. Of course such children differ enormously, some being heavy and dull, others apparently quite bright; but a few minutes spent in quietly watching the child, while he moves about and handles things, will not be time wasted.

(12) Perhaps the best simple test of the *memory* is found in the ability of the child to go errands. Another good test is to show him a number of articles on a tray, and then, while his back is turned, place these articles in various visible positions and then ask him to find and replace them. Questions may be asked about his meals, or if he remembers how he came to the school and what he has noticed on the way. These are quite valuable points, and will give much information about the mental capacity. Some feeble-minded children can say poetry or songs, but too often this is a mere parrot-like repetition. The power of *attention* is very important for the child's future mental development, and

must be carefully noted. This may be tested for by asking the child to cross out all the e's or o's in a sentence, or asking him to perform some task which needs attention for its completion, such as the sorting of snap cards. A good test of the *reasoning* powers is to ask the child to put on a coat, which has had the sleeves turned inside out, or to sit on a chair which has been turned upside down. The board test described on pages 117 and 131 is a valuable simple test. The powers of *association* can be simply and rapidly tested by asking the child questions about pictures, and in this connection it is necessary to find out what opportunities the child has had for mental development. Individual and skilled instruction makes such a great difference that this is a very important point both for diagnosis and prognosis. Questions on general knowledge are not of much use as tests unless the child has had experience. He can be asked to write or draw or do simple sums or be given a simple problem to solve, and in most instances an idea of his general intelligence can soon be formed. Another point that is of great value is whether the child is aware of his own shortcomings or not. A feeble-minded child does not as a rule know that he is below the average, and is quite content to remain with other feeble-minded children. If the child commences to babble and talk aimlessly about himself or about anything that may come under his attention, he is often a bad case. The more elaborate series of tests devised by Binet and Simon (see p. 253) are of great value when time is available, but it is doubtful whether they are necessary. Dr. Fernald, from a prolonged experience, states that these tests are not very effective in the cases in which they are most needed, *i.e.*, cases of slight mental defect. In other words, they corroborate where corroboration is not needed, and are not decisive where decisive tests are needed. He decides that they are most useful as aids to teachers in selecting cases for the

physician than for the physician himself. He also adds that psychological tests cannot be relied on as the sole tests, because some cases can pass these tests although they are in the light of other data obviously "incapable of managing their own affairs."

(13) *Standard at School.*—Children generally pass out of the infant school at the age of six years and go up one standard with each subsequent year; therefore a child should be in the First Standard at 6-7 years, the Second at 7-8, the Third at 8-9, the Fourth at 9-10, the Fifth at 10-11, and so on. The bulk of those suitable for a special school are found in Standards II. and III., having been moved up on account of age. Some of the better class of the feeble-minded are capable of making a fair amount of progress. Dr Fernald gives it as his opinion that retardation amounting to three years below the age-grade with no handicap of ill-health, etc., is strongly suggestive of mental defect.

The method of reading and writing may help to show the character and capacity for sustained effort. Thus if a child, on being asked to write a word, scribbles aimlessly instead of trying to spell the word, the prognosis is worse than if he stops and admits that he cannot do it.

Sums, except those of simple addition, are usually beyond those who come up for examination, though a few may be able to do more in this respect. Feeble-minded children do much better with concrete objects like beads and bricks, but even then their powers of calculation are very small as compared with those of ordinary children.

Finally, it should be again noted that the information given by the teachers and parents who have had charge of the child is of very great value, and should always be placed before the examiner.

Differential Diagnosis of Feeble-mindedness and Backwardness.—As previously stated, it is by no

means easy to differentiate some cases of dull and backward children from feeble-minded children, and the following two cases are quoted to illustrate typical examples of each condition.

Case of Feeble-mindedness :—

A. O., aged 9 years, poor health, cough, easily tired; vacant expression; head circumference $20\frac{1}{2}$ in.; no deformities; sight and hearing fair; highly arched palate, ears normal; memory, attention, and control poor; mischievous; counts to twenty and can do very simple addition but no more; cannot read but knows letters; can write "cat" but only makes a meaningless scrawl in place of his name; speech defective; habits somewhat dirty; can dress himself. Family history shows that the mother's father died of tuberculosis, and that a twin brother of the mother is mentally defective.

The following is a typical case of Backwardness :—

A. F., aged 8 years; marked rickety deformities of the limbs and stunting; aspect and bearing bright; head circumference $20\frac{1}{2}$ in.; sight and hearing good; no physical stigmata; memory, attention, control, and sense of right and wrong good; slow at figures, counts up to twelve, but cannot do abstract calculations, not even the simplest addition of figures; cannot read or write; speech and habits good; can help to dress himself; has not been to school on account of weakness of legs; family history negative.

These two cases illustrate several points in the differential diagnosis of the two conditions very well.

(1) The family history was positive in the feeble-minded child and negative in the backward child.

(2) The opportunities for mental development had been poor in the case of the backward child, and fairly good in the case of the feeble-minded.

(3) The general appearance, memory, and attention were much better in the backward child: also the feeble-minded child was mischievous at times, and was not of very clean habits: the backward child has not learnt to dress himself, because he had been physically incapacitated.

(4) The feeble-minded child spoke badly.

(5) The backward child had never learnt his letters or figures, and in consequence could not make any

attempt at reading, writing, or calculation, while the feeble-minded child, who had had opportunities, could make some attempt at addition and writing but was far behind the average child; also he did not fully appreciate or admit this fact, but wrote a meaningless scrawl for his name. Progress at school is not an infallible index, and a child may be low in school standards and yet have excellent common sense. If he can direct his daily doings sensibly he should not be classed as mentally defective, even though he be several years behind others of his age. Often, however, it is necessary to have the child under observation for some time, and for this purpose "sorting" classes may be of value.

Mental Deficiency in the Early Years of Life.—We shall very briefly discuss here the signs of mental deficiency in early life before school age, because it is important that such cases should be recognised and trained as early as possible. As a rule the diagnosis of feeble-mindedness is not made during the early years of life unless the child belongs to one of the special types, and it must be remembered that these types form a small minority only. In the greater degrees of mental deficiency, idiocy, and imbecility there are often signs at an early age that excite the alarm of the parents and make them consult a doctor; but in the lesser degrees they are less marked, and are not often noticed until after the first few years.

Inability to sit up, lateness in learning to walk and talk may excite the alarm of the parents but are put down to mere backwardness. Nor is it easy for a medical man skilled in the examination of these cases to give a definite opinion at an early age. Deafness and blindness must be excluded, and a good deal of importance is to be attached to the response to external stimuli and to the vigour and expression of the infant. Feeble-minded infants neither notice things nor attempt

to play, grasp, or babble in the same way as do ordinary infants. They may either lie quite still and never complain, or they may make ugly, fatuous sounds, constantly repeat some useless movement, cry out continuously without cause, and bang their heads about. The presence of many of the stigmata of degeneration, a family history of mental affection, small circumference of the head, and poor development of control over the bladder, bowels, and muscular system are also suggestive points.

It must be remembered that delayed development of function may be due to conditions such as wasting, rickets, and other diseases, so that it is not always easy to give a diagnosis.

Cases illustrating such conditions are :—

(1) F. P., *æt.* 1 year; cannot sit up; head 18 in. On examination the back muscles are found to be abnormally weak, and, since the child smiles and crows, can shake hands, and has already developed some control over the bladder, it is quite evident that the inability to sit up is due to some weakness of the muscles and that the child is not mentally deficient. This case improved rapidly with treatment, and is now normal.

(2) M. C., *æt.* 1 year; weight 16 lbs. 12 ozs.; epicanthic folds marked; head 18 in.; has only just learnt to sit up; no attempt at walking; has said "mamma" and "dadda" and recognises parents readily; no signs of control over bladder yet; family history negative, no history of convulsions; child born prematurely at 8 months; no spinal disease or deformity present.

In this Case (2) the fact that the infant can talk and recognise its parents is much more important than the lateness in developing control of the muscles, so that the prognosis of both mental and physical development is good.

The following Case is a marked contrast to Cases 1 and 2 :—

(3) A. C., *æt.* 2 years. Brought because she cannot walk or talk and seems very irritable. She has attacks of unconsciousness, sometimes every half-hour, sometimes once a day. She bites and eats anything that she can get hold of, taking pieces out of her clothes or out of the tablecloth. There is no family history of mental trouble; the mother is nervous and had a bad shock during pregnancy. On examination the most marked symptom is the

great want of the power of attention, for though it can be shown that the child can hear and see quite well, she does not notice loud sounds or bright objects unless they happen to awaken a momentary flicker of interest; she gazes aimlessly round with a vacant expression, continually moving her head from side to side. She cannot walk or talk, and has made no attempt at either. There is no sign of any control over the bladder and bowels. She resents any examination of her head, which in $18\frac{1}{4}$ in. in circumference. Epicanthic folds are present but the palate is normal.

In this Case (3) there is no doubt that the child is a low-grade case, for in spite of the facts that there is no family history, that there are but few physical stigmata, and that the patient has a head of fair size, it is easy to diagnose mental deficiency from the vacant expression due to want of attention, the lateness in developing control, the irritability, and the habit of biting and eating anything that may come to hand.

Deafness in Relation to Feeble-mindedness.—As a hospital physician, I have often had to decide the problem as to whether a deaf child is also feeble-minded. Also at the Royal Schools for the Deaf, Old Trafford, Manchester, I have for some years examined the children to decide whether they are fit for admission to the schools or not. The problem is often a most difficult one, and for that reason I shall enter into it rather fully.

Feeble-minded deaf children are those who are not endowed with the capacity for normal mental development, and are therefore unable to make much progress in any but the simplest methods of communication and education, and are, therefore, permanently incapable of receiving proper benefit from instruction in ordinary schools for the deaf.

One of the best tests regarding the mentality of a deaf child is whether he can learn to speak and to lip-read; but, though a child who cannot learn these powers is usually of a lower mental level than a child who can, so much depends on the age at which instruction is begun, and the nature of the instruction given, that the test is not infallible. Many of the children who have

to be relegated to the department for sign-instruction may show quite a high level of mental capacity.

The Binet and Simon tests are not suitable for deaf children, although many of them are adaptable, and some can be used in their original form. Still it is quite impossible to compare the mental capacities of normal children with those of deaf children by these tests, because they involve constant questioning which can hardly be done by writing. It is often very difficult to explain a test to a deaf child, and to be sure that the deaf child knows what is required; and further, deaf children are so handicapped by the scantiness of their vocabulary that they do not do themselves justice. As an illustration of this poverty of expression due to defective vocabulary the following responses to the tests for supplying to a given list of words other words having an opposite meaning are given. Two deaf children of good intelligence gave good—bad, heavy—light, white—milk, mad—gentle, bright—sunny, clever—stupid, and tall—little, wet—fine, rude—girl. Two other deaf children of lower mental level gave thin—fat, white—chalk, tall—big, and white—colour, false—wicked, empty—enough.

Tests must be conducted as games, and made as interesting as possible. Care must also be taken to make sure that the child understands what is required of him.

Without attempting to make a complete list, it may be of value to give a few of the tests specially applicable and useful for deaf children. After noting the powers of feeding, dressing, or caring for themselves, the general behaviour in the playground and the power of entering into games, and giving due consideration to the effect that the up-bringing of the child will have had on these powers, one can choose the special tests suitable for each case. One of the best tests to begin with for small children is the board test. Differently shaped blocks

which have been cut out and made to fit holes cut out of a board, are mixed up, and the child is then asked to replace them. Some of the blocks must be of similar shape but not exactly alike. Naturally training counts in this as in any other test, especially if the child has been accustomed to do jig-saw puzzles or brick patterns. Nevertheless the test is valuable in most cases, first to establish confidence, and secondly to show general intelligence; it is evidence of more than shyness when children try to force a triangular block into a hexagonal hole, especially if they have seen others do the test. Other suitable tests are (1) replacing the two parts of a card cut diagonally; (2) drawing the Binet test figures after having seen them once; (3) counting and counting backwards; (4) counting with beads or nuts or other small objects; (5) showing five or more small objects, and then, when the child is looking the other way, scattering these objects and placing them in visible positions within easy reach; the child is then told to turn round and replace the objects; in this manner the visual imagery or memory is tested; (6) sending the child on errands for several things from different rooms; (7) copying drawings; (8) matching colours; (9) telling the time and imagining the time if the hands of the clock should be transposed; (10) writing down words of an opposite meaning to a given list of words; (11) educational attainments such as writing, reading, arithmetic, and manual work.

With regard to younger children, the poor development of expression on their part, and on the examiner's part the difficulty of making himself understood either by sign, speech, or writing, add to the difficulties, but it is nevertheless usually possible for an expert to find out whether the mental capacity is within the normal range or not. Sometimes want of docility, waywardness, or other peculiarities may be very marked because the child has been left to itself a great deal or has been

ill-treated or neglected. Such children may be very difficult to test, and a probationary period combined with careful and continuous observation is necessary before a definite opinion can be formed. The following cases serve to illustrate the points raised above :—

R. E., æt. 13 years, born partially deaf. *Dull*. Suffers from chorea, backward, very poor memory and reasoning power; used to have good reports at first; quite fair at sums and adds five, four, three, and two in his head; has attained life-saving proficiency in swimming; does not always go errands well, but would remember commission given him for next day; would know what to do if lost. He has been delayed by illness, and is better at manual work than school-room attainments.

E. M'I., æt. 10 years, born deaf. *Dull*. Stupid; poor power of concentration; weak will; little power of imitation, but is of fair general intelligence and does manual work pretty well; is improving and is of good appearance and nice character; can go errands and when sent for a hammer brought nails as well. He is rather too placid and too easily overborne by other children.

S. G., æt. 15 years, has a fair amount of hearing power left. *Marked dullness* but hardly feeble-minded. Queer and backward; speaks badly but has no consonantal defect; very poor at arithmetic; can tell the time but cannot do the test of interchanging the hands of the clock; adds four, six, seven, five on his fingers but not in his head.

R. S., æt. 9 years. *High-grade feeble-minded*. No interest or will power or concentration; very poor memory and very slow progress; powers of association extremely weak; adds and subtracts five beads but not very well, and also counts a little and can write a few words; very poor considering the amount of instruction he has had.

G. S., æt. 14 years. *High-grade feeble-minded*. Did better at first but is not doing well now; inconsequent, a chatterbox, very careless; is fairly quick but has no power of concentration; gets lost easily and does not know what to do when lost; does addition and elementary money addition but cannot do division.

The following case shows how neglect may lead to a strangeness of manner and the formation of peculiar habits, which may make the child appear feeble-minded on a cursory examination :—

D. D., æt. 5 years, born deaf. Has a deformity of the chest, a deformed mouth and supernumerary auricles; is subject to a facial tic or habit-spasm, and has a defective self-conscious expression. She sighs frequently, probably another manifestation of habit-spasm; she can feed herself, and is of clean habits; the de-

formity of the mouth should not prevent her from speaking. She shows an intelligent interest in birds and animals; does the board test well; does not attempt to use an unsharpened pencil; and though peculiar is evidently not feeble-minded or even dull. She has evidently been left very much to herself, and her physical deformities, defective expression, and peculiar habits are very misleading. She brightened up considerably after a short stay in the school, and will do quite well.

CHAPTER VIII

PROGNOSIS

ASSUMING that we have already decided that the child is feeble-minded, we have next to consider the future, and also to see if we can to any extent foretell the amount of mental development which is likely to take place.

Death Incidence.—Mentally defective persons die at an earlier age than is normal, and this characteristic is probably more marked in the greater degrees, idiocy and imbecility.

Mongolian imbeciles are liable to sudden death, and, generally speaking, imbeciles and feeble-minded are weaker and less resistant to disease. Also a large number of the mentally defective die in infancy before their condition is noticed.

Dr. Still states that in his opinion the mortality in mentally deficient children is probably considerably higher than that amongst normal children, and that the chances of a mentally deficient child reaching adult life are definitely less than those of a normal child, while Dr. Shuttleworth, quoted by the late Dr. Ireland, found that the mortality in mentally deficient children is about nine times as great as that of normal children in the age periods 5-10, 10-15, 15-20.

Dr. Tredgold shows that the death-rate is highest from 15-20 years, the period in which it is lowest in ordinary children. He gives a death-rate of 30 per 1,000 for aments as compared to 20 per 1,000 for the general death-rate.

Dr. Barr, from a study of 625 cases, came to the conclusion that few pass the 25th year and most die between 10 and 20. These conclusions seem to be sweeping, but from his table there is little doubt of the truth of his inferences, only 83 of the 625 cases being alive after 25 years of age. Clark and Stowell find that the span of life is curtailed in the "feeble-minded and idiotic," but that a considerable number live beyond the age of 40 years. Of 1,000 deaths of mentally defective persons, the maximum number died under the age of 25, 30 lived to be over 35, 17 to be over 40, and 4 to be over 50. From 1903 to 1911 of 4,275 persons under their care ("2,667 feeble-minded and 1,608 idiots") the mortality was 6.5 per cent. in the first group and 19.6 per cent. in the second. With regard to children, even when under the best conditions the mortality was with the high grades double that of normal children and with the low grades treble that of the high grades. Nearly one-fifth of the mentally defective children born die under the age of one year. The deaths were caused chiefly by infectious diseases, especially pneumonia, typhoid, and tuberculosis, though "inanition" was the only observable cause in a fair proportion of cases. Many mentally defective children succumb very rapidly to any acute illness, and it is quite clear that they exhibit a diminished physical resistance to infections of all kinds and a consequent diminished power of recovery from illnesses. This characteristic becomes the more marked the lower the grade. Persons merely feeble-minded have a longer span of life than the lower grades, and this certainly is the experience at Sandlebridge, so that one can say that there is not necessarily an unusual death-rate in the feeble-minded from 5 to 20 years of age. At Waverley, in America, Dr. Fernald has had much the same experience. However, good conditions are very often wanting, and there is little doubt that the feeble-minded tend to be less

resistant physically to bad conditions than are normal children.

The causes of death in Dr. Barr's cases were phthisis 121, epilepsy 102, meningitis 42, diseases of the nervous system 77, diseases of the digestive system (some of which were tuberculous) 109, pneumonia and acute infectious diseases 133. The large proportion of deaths from phthisis and epilepsy should be noted. Dr. Caldecott, quoted by Dr. Still, found that, at the Earlswood Asylum amongst 1,000 consecutive deaths over the age of six years, 39.2 per cent. were due to tuberculosis (30.5 per cent. of these being due to pulmonary and only 1.1 per cent. due to meningeal tuberculosis), 12.4 per cent. were due to epilepsy, and 10.4 per cent. to pneumonia. Clark and Stowell found the death-rate from tuberculosis to be 10 per cent. only.

A great deal depends on the amount of care taken to exclude and prevent the spread of phthisis and other forms of tuberculosis. The mentally affected often come from a stock with a weak resisting power to tuberculosis, so that once this disease obtains a foothold, it may spread and do much harm. An open-air life, cleanliness, control of milk supply, and exclusion of infectious cases are generally effective in keeping this disease from obtaining a hold amongst the children. Much of the mortality from phthisis in institutions has been due to absence of the precautions necessary to exclude infection. Where the "soil" and the conditions are favourable to the disease, an infectious case of tuberculosis can do a great deal of harm. But where the conditions are unfavourable and proper precautions are taken to prevent the spread of infection, not many cases occur even though the "soil" is favourable.

Mental Limitations.—Few duties are more distressing than that of telling the parents of a feeble-minded child of the mental limitations and of the impossibility of there being any complete cure. It sometimes seems

almost better not to tell them at once, but, sooner or later, they must be made to realise that the child can never earn its living in the ordinary way, and that they should either take steps to put him under efficient and lifelong supervision or send him to a good home for the feeble-minded. Though it is often a very great blow and shock at first, it is better for the parents to face the difficulty instead of procrastinating and hoping, against their better judgment, that at seven years or at fourteen years there will be some sudden and wonderful change : unfortunately they are often encouraged in these false hopes. Once provision has been made and the onus of caring for the child has been removed from the parents the whole family is benefited. The parents are spared the incessant worry of looking after the child, the child is better cared for and better educated, and the other children of the family are not influenced. A feeble-minded child often has a degrading influence on the rest of the family, and is really very much happier in a home with other similar children.

Probability of Improvement.—Once it is decided that feeble-mindedness is present, it is useless to shirk the fact that the condition is lifelong. Of course it is of varying degree, and it is the estimation of the degree of defect and the likelihood of improvement that concern us here.

It is by no means easy to forecast the future mental development, but the points which help us most are :—

- (1) The age at which the child commences to walk and talk.
- (2) The type, if the child belongs to one of the special types.
- (3) The presence or absence of epilepsy.
- (4) The presence or absence of mental and physical defects, including speech defects.
- (5) The general appearance and behaviour.
- (6) The progress made at school.

The intensity of the neuropathic inheritance seems to have little to do with the degree of mental defect, since children with the worst family histories are not necessarily of the lowest grade. Therefore, though a marked family history helps us in diagnosis, it is not of much value in foreshadowing the possibility of improvement.

(1) *The age at which the child learns to walk and talk.*—One of the most valuable indications in predicting the degree of mental deficiency is the age at which the child has learned to walk and talk.

It will be seen from Table III. that the age at which the power of control over the muscles develops is later in the cases with greater degrees of mental defect, and this sign is therefore an important aid to prognosis. We have already discussed the causes of this delay. The later an infant learns to sit up or to babble, the worse, as a general rule, will be the future mental development. The normal infant should sit up at nine months and babble at ten months.

Therefore, if a feeble-minded child is very late in learning to walk or talk he is likely to develop into one of the worst cases. Much the same applies to lateness in learning to control muscles governing the evacuation of the bladder and bowels.

(2) *Type, if any.*—If a child belongs to any of the special types, the outlook is decidedly worse, with the single exception of Cretinism.

(a) Mongols are generally worse than the average feeble-minded, though there are a certain number of high-grade cases. However, we seldom find that definite Mongols are of a high enough grade of intelligence to be fit for special schools, and they are more likely to fall into the imbecile class.

(b) Microcephalics are also of a low grade in the majority of cases. In a real microcephalic the degree of mental defect is usually more or less proportionate to the size of the skull, but this is only a general

tendency, and fine distinctions as to the mental capacity cannot be drawn from the size of the heads.

(c) Cerebral Diplegics vary much in their mental capacity, but they are usually disappointing in both their mental and physical development. Owing to the physical infirmities only the slighter cases can attend schools. Cerebral diplegia is a condition seen far more often in hospital out-patient work than in educational or special institutions for the feeble-minded. However, certain of these and of the Hemiplegic cases improve considerably with treatment and care. One child, on the left of Plate X., has improved very much mentally since he has been occupied daily in turning the mangle, and curiously enough his weak and partially paralysed arm has improved very much also (see also p. 226).

(d) Cretinism is a different matter. Here the child is mentally deficient because there is no internal secretion from the thyroid gland, and his whole body is suffering from the want of this. Formerly all cretins were hopelessly dwarfed in mind and body, but treatment with extract of sheep's thyroid gland has a most remarkable effect. The rapid improvement at first often leads to hopes of complete cure mentally and physically. Theoretically this should be the case if treatment is begun early and kept up; but, practically, a large number of cretins which have been treated grow up into mentally slow individuals, of a fairly high grade it is true, but still definitely slower and less intelligent than ordinary persons. One case, E. Y., who has been treated practically all her life with remarkable results at first, is now well physically but is definitely feeble-minded. In her mother's words, "she cannot go errands because everyone laughs at her, and she will play the 'softie' with any little child in the street."

Case A. was bright mentally but his bodily deformity and stunted growth were very marked. Case B. was fairly well developed physically and able to wait at table, but she was very

slow and forgetful in every way. Case N. W. looks bright and intelligent, but is smaller and less advanced than her sister, who is two years younger.

Other cases seem to reach almost to the level of ordinary mental intelligence, and if they can get employment may be capable of earning their own living, but, practically speaking, the future mental state of most treated cretins is feeble-mindedness.

(3) *The presence or absence of Epilepsy.*—If an epileptic child is also definitely feeble-minded, the chance of mental and physical improvement depends a good deal on the extent and course of the fits. If the fits are at all frequent or severe, the child goes downhill in mind and body. We shall see that chronic meningitis is not uncommon in such cases, and if meningitis is present it is easy to understand the progressive deterioration in bodily and mental health, and also the difficulty of controlling the fits by suitable treatment. If the fits can be controlled the child does as well as other feeble-minded children do. Fits may reduce a high-grade case to a low grade, so that successful treatment of the fits usually improves the mental condition; but one must never lose sight of the fact that such cases are feeble-minded, and in consequence cannot reach the level of average intelligence.

On the other hand, in an epileptic who is dulled but not also feeble-minded the fits may be stopped and the child cured.

(4) *The presence or absence of physical or mental defects.*

(a) *Physical Stigmata.*—The head may vary considerably in size without giving much indication of the degree of mental defect. When dealing with feeble-minded children of the special school type it is not possible to form any definite opinion from the head measurements, though of course those with the smallest heads tend to be the less intelligent type. This is shown in Table V.

in Appendix II. Still, the children vary a great deal, and many of the worst cases have quite large external skull measurements. When dealing with Microcephalics and Mongols and the greater degrees of mental deficiency more reliable information as to future development can be obtained from the size of the head. In the same way, in infants the size of the head gives a good deal of information.

In estimating the possible mental development the head measurements alone must not be relied upon; they are only of use in conjunction with other signs. The presence or absence of the deformities of the ears, palate, eyelids, and other parts helps to some extent, tending to be more common and of greater degree in the worst cases. But this again is only the general tendency, and many exceptions occur. Prognathism or protruding lower jaw gives the appearance of a dull heavy type, but such cases are often of a higher grade than one would expect.

(b) Mental Stigmata.—Pica, or the habit of eating dirt, coal, and other repulsive things, belongs more especially to the lower grades of mental deficiency, and should therefore be taken as being a bad sign. Other depraved and disgusting habits have much the same meaning. Bulimia or inordinate eating is partly due to defective sensation from the stomach and partly to want of restraint.

(c) Speech.—Speech defects are more common in the worst cases, but it is doubtful whether they have actually much effect in preventing progress in mental development. The child can usually make himself understood and can understand others, the only difference being that he may be more silent, and in children of normal intelligence speech defects have no great effect in retarding mental development.

(5) *General appearance and behaviour.*—Of course a great deal depends on the powers of voluntary and sus-

tained attention and on the temperament. It is very difficult to get any results with children who cannot give sustained attention, and in making an estimation of the probable future mental development one must consider these powers carefully. Many apparently bright children make little progress because their attention is so easily diverted from one subject to another, and it may be the more stolid and unemotional children that improve most.

The absence of natural modesty is a bad sign, and is more evident in the lower-grade cases. In the same way, if a child cannot be taught to wash, though physically able to do so, it generally indicates a fairly marked degree of defect. A child fit for an institution for the feeble-minded should be able to learn in at least six weeks that personal cleanliness is important and how to keep clean. Of course many ordinary children do not easily learn to keep themselves clean, but in an institution much importance should be given to personal cleanliness, and a great deal can be learnt of the child's mental powers by the amount of response he makes to efforts to teach him such matters. They should also be able to feed themselves; at first there is often some trouble with this, but one can soon judge whether the child will learn quickly or not. If a child cannot feed himself and there is no deformity or disease, the mental powers are likely to be very poor.

It is not difficult to eradicate the habit of masturbation if the child is young and if cleanliness, wholesome, plain food with the minimum amount of meat necessary, and plenty of physical exercise are enforced. The feeble-minded are easily led astray by a bad example, and bad habits spread by imitation. They are also as a rule amenable to discipline, so that, given absence of bad examples and good conditions with plenty of occupation to produce healthy tiredness, bad habits can be reduced to a small minimum.

It is well to emphasise here the importance of admitting the children at an early age before they have acquired bad habits or bad characteristics; also one can see how very necessary it is for these children, if they are to avoid degrading conditions, not to lie fallow in mind and body.

Future of Moral Defectives.—The progress of cases which show moral failings is often very discouraging. Punishment has but a temporary effect on the majority, and the only way to prevent what is apparently an ineradicable defect is to keep the child out of temptation. Such cases may be very difficult to deal with in an institution, for they cannot be isolated and their influence on the other children is sometimes very bad. The prognosis in these cases is decidedly bad as regards their especial failing, though generally they are of high grade. Recent experience has shown that it is extremely important that they should be recognised and suitably controlled. At the State institutions there are already a number of girls who have been educated in Day Special Schools, and then turned out only to come under care as violent and dangerous criminal defectives. However, true examples are not very common, and if they come under discipline early they can generally be sufficiently controlled to allow of their residence in a colony.

(6) *Progress at School.*—Progress in learning to read, write, and calculate is of considerable value in the estimation of the degree and nature of the defect or of the amount of improvement to be expected. It must always be remembered, however, that these are educational attainments, and, as such, are often defective in children not feeble-minded but only backward.

Feeble-minded children are not good at school work, and, though the school teacher can form a fairly correct estimate of the mental capacities, some cases do surprisingly well at outdoor work when they are quite hopeless in the school-room (see p. 233).

It is very difficult to draw a line between the lowest grade of feeble-mindedness and the imbeciles. In an institution for the feeble-minded there are always a certain number of doubtful cases, who may have to be discharged as being of too low a grade; but, as we have said before, some congenial occupation may do a great deal even for the worst cases.

Some small responsibility or charge may give infinite pleasure to these simple minds, and a case should not be given up as hopeless until everything has been tried.

In early life much information can be obtained from watching whether the child plays and notices things going on around him, from his attitude and expression, and from his general appearance and actions, while later there are the other signs; but it is difficult to give definite rules, because large and varied experience alone enables one to predict the future mental development of the feeble-minded child with any degree of accuracy.

Of one thing, however, it is always possible to speak with no uncertain voice—if the child is feeble-minded, he or she can never rise to the mental level of the ordinary child, and should never be abandoned to earn his or her own living. Therefore, though in many cases it is possible to raise the child to a level high enough to enable him to do useful work under supervision, he should never pass from the immediate care of persons capable of guarding and guiding, what is likely to be a precarious and irresponsible lifetime.

CHAPTER IX

TREATMENT AND CARE

THE methods of treatment and training in institutions and schools are so excellently and so fully given by Miss Dendy in Appendix I. that it is not necessary to do more in this chapter than to refer to the medical aspects of the care of feeble-minded children.

We must realise that in dealing with feeble-minded children we are dealing with children who are considerably below the average in mental development and who can never attain to that average. We must understand that this failure of mental development is more or less uneven, so that some children are especially deficient in one mental quality, others in another, and that no two cases are exactly alike. It follows that treatment and training must be conducted on both individual and general lines. Further, we must realise that many of these children, though they cannot be brought up to the normal, can be considerably improved mentally and physically. In some cases it is necessary to begin with the very simplest exercises, such as handling pieces of wood and adjusting them to similarly shaped holes, and then gradually to take the child on to harder ones, any occupation being better than none. Tasks that give the children some concrete and definite object to work with are the best, since the difficulty of gaining and fixing the attention is perhaps the greatest bar to successful teaching.

Those who are engaged in work of this nature should not be disheartened if no benefit is immediately appa-

rent, because progress is often very slow, and such work calls for a great amount of patience and perseverance.

Treatment of a Feeble-minded Child at Home.—Good habits, personal cleanliness, neatness and tidiness in clothes and rooms are things to be taught first. The child must not have everything done for it, a point that is very important as regards attention to personal needs. Want of cleanliness or absence of control over the bladder and bowels may be tolerable in a child of three years, but becomes much more disagreeable and troublesome as the child grows older, and good habits can best be taught if training is begun early. The child should be taught how to feed himself, and, since many feeble-minded children have a tendency to over-eat or to bolt their food, careful training is necessary to prevent digestive disturbances, such as furred tongue, foul breath, and irregularity of the bowels.

With a judicious mixture of kindness and firmness, much can be done to improve the mental and physical state of the child. Constant occupation, discipline, and cleanliness should eliminate bad habits, and the child must be protected from association with persons likely to have a bad influence on him. Feeble-minded children are much more easily upset than are ordinary children; consequently careless or ignorant visitors may, quite unwittingly, undo in a short time what it has taken weeks to teach.

Little responsibilities such as the care of a small patch of garden add greatly to the child's pleasure, and it should not be difficult to make him happy. There is no doubt that the company of other children of a similar mental calibre is an advantage rather than a disadvantage, discipline being more easily maintained under these circumstances and the children being much more cheerful and more easily amused. Furthermore, they make great friends with animals, so that dogs form very good companions and playmates.

Open-air exercise and drill or games for developing the control of their muscles are quite as important for them as for ordinary children. The games chosen should be ball games, such as football or tennis, battledore and shuttlecock, skipping, and in fact any of the ordinary games suited to training hand and eye to work together in co-ordination. Many feeble-minded children need a good deal of stimulation to make them play or work, and it is very necessary to prevent them from simply sitting still gazing vacantly at nothing and perhaps rocking to and fro. Such characteristics are more marked in the worst cases, but in all cases precautions must be taken to prevent mental vacancy, the company of their fellows being one of the best remedies.

The treatment of bed-wetting is discussed later (p. 150).

Special Schools and Institutions.—The children are chiefly selected from those attending ordinary schools or from other cases recommended to the education authorities.

In Appendix V. are given the statutory forms and certificates. The form should be filled up at the examination of the child, but it is often impossible to get a reliable history at once. A reliable history is very valuable, and it is worth while to go to some trouble to verify, and correct if necessary, the points filled in at the time of the examination of the child. At the Royal Albert Asylum, Lancaster, the parents are given two forms—the first is a model filled in as a guide; the second is blank, and on it they are asked to fill in the particulars regarding their child when they have had time to collect evidence. They are also given a form to be filled in by the family medical attendant. The certificate must be filled in by the medical officer as soon as the diagnosis of feeble-mindedness has been made.

The school hours should be arranged so that the times of opening and closing do not coincide with those of the

ordinary day-schools, in order to prevent other children from bullying and teasing the feeble-minded.

The hygiene of these schools is much the same as that of others, regular bathing, cleanliness, and neatness being especially important. Consequently it is necessary that the schools should be provided with good baths, and that the children should be made to bathe once a week. Each school should have two sets of hot and cold water baths in separate rooms, one for boys and one for girls. It is important to note that the baths should be shallow, of the "slopstone" variety, a depth of eighteen inches being sufficient. They should be of glazed brick, set into the floor, and large enough to accommodate four or five children at a time. A bath attendant is needed, and the caretaker of the school and his wife may be suitable for this duty. Lighting and heating and good airy cloakrooms are just as necessary as in ordinary schools, and a large central hall is essential for drill and exercises. The playgrounds should fulfil the usual requirements.

Physical drill is very necessary, and there should be frequent breaks in lessons for the purpose of marching, skipping, or other exercises. Rhythm and swing are important, so that music is a valuable asset. It is fortunate in this connection that feeble-minded children have an especial liking for music, which attracts and fixes their attention more than anything else. Drill must not be too arduous, because it must be remembered that feeble-minded are weaker than ordinary children; moreover, they cannot concentrate on any one subject for long, and need, therefore, a greater variety in drill or lessons.

Individual teaching is very important; each child should be known and his various failings noted, analysed, and corrected by special instruction if necessary. For this reason classes should be as small as possible, the maximum number of children being

twenty* (and for manual and domestic subjects fifteen), and the class-rooms built on this scale. It is remarkable how these children improve at first, when the special efforts made to gain their attention and the individual teaching begin to have an effect. Specially trained teachers are needed, and one teacher is required for each class exclusive of the principal teacher.

One great advantage of special schools to feeble-minded children is that, though not always conscious of their mental infirmity, they are often bullied and teased in the ordinary schools, while in addition they cannot have that special care and skilled instruction which is so necessary for the development of their crippled faculties. Instead of suffering from contact with other children of the same class, they are distinctly benefited by such association, for they lose any feeling of being behindhand, if such ever existed, and many of the higher grades are decidedly improved by being able to help others of a lower mental capacity.

Care of the Eyes, Ears, Teeth, Nose, and Throat.—The care of the eyes, ears and teeth is important. There is no doubt that the feeble-minded are less resistant to disease, so that ear trouble is not uncommon and minor defects may become much worse for want of proper care.

Care of the mouth and teeth is very necessary, because bad teeth form convenient portals for the entry of disease besides leading to imperfect mastication and to

*A book of regulations is published by the Board of Education, and can be obtained from any bookseller or directly from H.M. Stationery Office at London, Manchester, Cardiff, or Edinburgh. The regulations are brought up to 1920, and contain instructions as to teaching, building regulations, grants, and other items regulating the conduct of Special Schools. Price 3d. net (Cmd. 617). The Annual Reports of the Chief Medical Officer to the Board of Education should also be read, and the Board of Control have issued "Suggestions for School Organisation and Classification in Institutions for the Mentally Defective" for the use of those who have opened or are about to open Training Schools and Colonies for the mentally defective.

indigestion. The teeth should be cleaned morning and evening, the evening cleaning being the most important. It is a good plan to have the services of an ophthalmic, an aural and a dental surgeon available for institutions, and special school cases can be sent to their own medical men or to hospitals.

Enlarged tonsils and adenoids should certainly be removed, because they lower the general health, give rise to catarrh and to poor chest development and to deafness, in addition to any dulling effect they may have on the mental powers.

Feeble-minded children bear operations quite well, except one of the special types, the Mongols. However, even with these the peculiarity is not sufficiently well marked to prevent operations necessary for their well-being.

Control of the Bladder and Bowels.—Bed-wetting is generally remedied by disciplinary measures, though it must always be kept in mind that some children suffer from this complaint because of abnormal conditions of the urine or urinary organs, or because they have large tonsils and adenoids. A nocturnal epileptic fit may also be a cause. These cases, however, are exceptional, and even apparently hopeless cases may yield to treatment on general hygienic lines. Such treatment is as follows :—

The bed should not be soft, and the bed clothes must not be heavier than is necessary for warmth; light bed clothes and a firm mattress are far better for the child in every way. The child should not be given anything to eat or drink for two hours before going to bed, and should have as little fluid as possible with the last meal. There is no need to restrict the total amount of fluids unless it is excessive, but it should be taken early in the day. About an hour after going to bed the child should be wakened and made to empty the bladder. If these measures are not successful medicinal treatment with belladonna may be necessary; but enuresis or

nocturnal incontinence is to a great extent a habit, which, if once broken for any length of time, is not very liable to recur.

There is not usually much difficulty in training these children to exercise control over the bowels when they are under supervision, and only the lower-grade cases give much trouble.

There is, however, a good deal of difficulty in ensuring that the children have a daily evacuation of the bowels. Regularity in this respect is very important for their health and mental well-being, constipation making them duller, more irritable, and more difficult to deal with, while, if the child is epileptic, constipation will increase the liability to fits. Care should be taken therefore to make a point of exercising a supervision over the daily habits. In this connection it should be pointed out that many of the troubles connected with the digestive organs may arise from imperfect mastication or bolting of food; also that such children may pick up and eat indigestible things of all sorts. For these reasons furred tongue, foul breath, constipation, or diarrhoea are common and give considerable trouble.

Fits.—It is necessary to distinguish between epileptic fits and fits due to hysteria, and it is by no means easy to do so in a fair proportion of cases. Amongst feeble-minded children epileptic fits are far more common than hysterical fits, which occur chiefly in girls. The main points of distinction are that the child with epileptic fits loses consciousness, often bites his tongue, and hurts himself in falling; the movements during the fit are purposeless, and the urine may be passed or the bowels opened while the child is unconscious. There may also be a family history of epilepsy, and the commencement of the fits usually dates from early childhood. A child suffering from hysterical fits is often nervous and excitable; the fits may be very real, but there is not the same loss of consciousness as in epilepsy, the tongue

is never bitten, nor does the child hurt herself in falling. The fit may be stopped or averted by a sudden shock or surprise, and often occurs when it is likely to attract attention. However, it is not always easy to differentiate the two conditions, and it must not be forgotten that a combination of the two, known as hysteropilepsy, may occur. The treatment of hysterical fits consists of firm, but not harsh, disciplinary measures, the discouragement of any morbid desire for sympathy, and of measures calculated to improve the general health and to occupy the child's mind.

The following is a case of hysteria :—

E.C., aged 6 years; family history negative; had a bad fall and was burnt one year ago; good habits and bright mentally; has fits several times a day; has fits if she cannot get her own way; the fits can sometimes be prevented by making her run; she always falls gently, and has never bitten her tongue nor hurt herself nor passed urine during the fits; if given anything nasty during the fit she spits it out.

Epileptic fits, especially if they are frequent, may have a great dulling effect, so that it is necessary to prevent them as much as possible. Quite a large proportion of feeble-minded children suffer from these fits, so that there are always several and sometimes many cases to be found in institutions. An outdoor life with regular and a not too stimulating diet has a very great effect in reducing the number of the fits and may even cure them. A child with fits should therefore be put to some outdoor work; but not where there would be any danger if he suddenly fell down in a fit. Regulation of the bowels is very important in these cases, and if bromides are ordered care must be taken to counteract their constipating effect by the addition of some laxative such as tincture of rhubarb. Bromides have to be used fairly often to counteract both fits and mere excitability or irritation apart from fits, but they can only be given under medical supervision. Borax is also a valuable remedy. Some cases with bad fits are very intractable,

neither medicinal nor other remedies having any effect; the child gradually goes downhill mentally and physically. In some of these cases there may be a chronic meningitis. An isolated fit, which seems to be epileptic in nature, may occur at some epoch such as dentition or puberty.

Thyroid Extract.—In cretinism, Thyroid Extract is essential, and its effect and methods of use have been already described in Chapter V. But a certain number of cases that are not cretins seem to suffer from a small amount of thyroid deficiency, so that improvement takes place under treatment with small doses. This improvement is, however, usually only slight and temporary.

Heart and Circulation.—The weakness of the flow of blood shown by the cold extremities and other circulatory disturbances common in feeble-minded children renders them less resistant to the effects of exposure and also very liable to chilblains and kindred affections. Consequently it is important to guard against undue exposure, and to make their clothing and boots suitable. But this weakness must not be made an excuse for non-attendance at drill or work unless there is some trouble which really incapacitates the child. Judicious exercise and work can do much to improve the child and inure him to the effects of variations of temperature.

In this connection the question of bathing and douching must be considered. Douching and variations in temperature are good in that they give exercise to the powers of contraction and dilatation of the blood-vessels near the skin: it is the activity of these vessels which enables a person to resist the effects of variations of temperature. Therefore douching and exercise designed to stimulate these powers are good for the child so long as they are judiciously applied and are not pushed too far. Such treatment must be begun gradually and increased as the activity of the skin blood-vessels

increases. There is no doubt that some cases benefit considerably from judicious hardening measures, but it must always be remembered that these children have very poor circulations, and such measures should never be overdone.

Tuberculosis.—One of the most important points in the care of feeble-minded children in institutions is the prevention of tuberculosis. There is little doubt that such children offer a weaker resistance to tuberculosis, and in some institutions there have been a large number of deaths from this cause. If the disease once obtains a foothold and finds favourable conditions it may spread rapidly, but by efficient ventilation and lighting and by providing the children with a vigorous outdoor life a great deal can be done to prevent its progress.

It must be understood that tuberculosis is due to a germ, which may be spread by the dried sputum of a person suffering from consumption or by infected milk or meat. Therefore supervision must be exercised over all persons, teachers, nurses, and attendants, who come into contact with the children, and children with active lung disease should be excluded. The milk (and butter) and meat must be free from infection with the germ, which may find its way into them either because the animal from which they have been obtained is tuberculous or from accidental infection by dust or handling during transit.

It must not be forgotten that some children may have the disease in a quiescent form, and that it may at any time be stirred into fresh activity by illness; a watch must, therefore, be kept for any such cases.

Experience at Sandlebridge and Waverley proves that if the above measures are adopted and thoroughly carried out cases of tuberculosis should be exceptional in institutions for the feeble-minded.

The Infectious Diseases.—Since outbreaks or isolated cases of infectious disease may occur in schools, homes,

or institutions, it is well to make preparations for dealing promptly with such cases. In many instances it is possible to send the child to the local hospital for infectious disease, but if possible it is a good thing to have isolation rooms or an isolation hospital available, where a child can be kept until he can be removed, or where doubtful cases can be kept under observation.

Modes of Infection.—The infectious diseases are all due to agents which may find entry to the body by being inhaled or swallowed, or by lodging in the nose or throat. The discharges from the body (especially those from the nose, throat, mouth, and ear) of a person suffering from one of these diseases are infectious, so that the clothes, towels, cups, and other articles used by them may carry the disease. Infection may be introduced by visitors or a nurse; a teacher or an attendant may carry the germs from one child to another, or a farm-hand or other person, suffering from the disease, may infect the milk or food. If the child's health is in a low state when he is exposed to the disease he is more likely to be affected, but the infectious diseases may attack children in good or bad health.

Since the clothes can carry germs, it is necessary to provide good airy cloak-rooms at schools, and at all times to see that the clothes have a good opportunity of ventilating and drying. The children should, as far as possible, use their own towels, drinking cups, brushes, and other utensils, while unnecessary games, habits, or customs likely to facilitate the spread of disease from child to child should be discouraged.

Disinfection.—Fresh air and sunlight are the best of disinfectants, few germs being able to live long under such conditions, hence the value of thorough ventilation, well-lighted rooms, and of open-air games and exercises.

When a case of infectious disease has occurred it is necessary to disinfect all articles that have been in the

room in which the child has been isolated. The smaller articles, which should be as few as possible, can be removed and suitably disinfected, and a sulphur candle can be burnt in the room itself to disinfect the walls and larger pieces of furniture. A spray of formalin 1-2 per cent. is useful and effective. Other useful disinfectants are carbolic acid, lysol, creasol, and chloride of lime. Heat is the best disinfectant of all, so that boiling or stoving is the surest method of disinfecting such articles as can be boiled or heated. Other large articles can be sprayed or sponged, and then placed out in the open-air and sunlight.

The Characteristics of Infectious Diseases.—The infectious fevers generally begin with feverishness, flushing of the face, general *malaise*, headache, vomiting, sore throat, and a rapid pulse. Later the rash comes out, but since most cases are infectious before the rash appears, it is important to isolate them early. These diseases have a period of incubation, which is the period between infection and the appearance of the symptoms, and it is important to appreciate this, because, when a case has occurred and been removed, other cases may be incubating and may arise at any time during the incubation period of that particular disease. The period of quarantine is that during which cases which have been exposed to infection may develop the disease. The feverish stage usually lasts for some days, and is followed by the period of convalescence, during which the child may be liable to the after-effects of the disease and consequently need supervision. The following are very brief descriptions of the common infectious diseases :—

Scarlet Fever (Scarlatina).—The incubation period is from 2-5 days and the quarantine period 14 days; the illness begins with headache, vomiting, sore throat, and a rapid pulse; the tongue is furred, and is said to resemble a strawberry in appearance; the rash is a diffuse bright red blush, and appears first on the chest and face; it is important to understand that scarlet fever may

occur without a rash or that the rash may be overlooked, the only prominent symptom being sore throat; the temperature is usually raised up to 102 deg. or higher, and, later on, peeling of the skin occurs, so that it is important to look for peeling and sore throats if scarlet fever is epidemic. Anæmia, ear disease, and kidney disease are common after-effects, so that children who have had an attack must be watched for such complications. The period of exclusion from school after an attack is six weeks from the onset, if all discharges from the nose, ear, and throat have ceased.

Measles.—Measles is a very common and in itself a less serious disease than scarlet fever, but its after-effects are very bad, and it is responsible for much tuberculosis and pneumonia. The incubation period is usually about twelve days but may be three weeks, and the quarantine period is three weeks; the disease begins with running at the eyes and nose, redness of the eyes, and cough; the temperature rises, and the child is extremely uncomfortable till the rash comes out; the rash is a blotchy, dusky red eruption, and first appears behind the ears; spots may be found inside the cheeks before the rash appears, and these are valuable for diagnosing cases early when an epidemic is rife, but they are not very easy to recognise; the period of exclusion is 4-5 weeks, and cases should be watched for cough or wasting, or other signs of tuberculosis.

Mumps.—In this disease there is inflammation of the parotid gland, a gland that lies in the neck just below the ear; the disease is very infectious, and may give considerable trouble in schools; the incubation and quarantine periods are both 3 weeks; the onset is characterised by painful swelling of the parotid gland, difficulty in swallowing, and some feverishness; the swelling may go down rapidly but the case is still infectious, and the period of exclusion is 4 weeks or longer if the swelling persists; the swelling is just below the ear and over the angle of the jaw, and must not be confused with the swelling of the glands lower down and further back, which are often swollen if the tonsil is inflamed.

German Measles.—This disease is much less serious than measles but epidemics occur in schools; it is almost intermediate between scarlet fever and measles in some ways, the rash being of tiny red spots, which are not so blotchy as those of measles, nor is the rash so diffuse as that of scarlet fever; cases vary very much, and sometimes there is hardly any rash at all; the incubation period is 14 days. The disease is usually a very mild one, and chiefly gives trouble on account of the difficulty of distinguishing it from scarlet fever or measles; the periods of quarantine and exclusion are 3 weeks each.

Diphtheria.—This is not a fever but a localised disease of the throat with general symptoms due to the poisons absorbed from the inflamed throat. It is very infectious, and the incubation period is 1-5 days; the child first begins with hoarseness, sore throat, a brassy, barking cough, difficulty in swallowing and

symptoms of general illness, but the temperature is not high as a rule. On looking at the throat a whitish membrane is seen adhering firmly to the tonsils and perhaps spreading to the palate; the disease may also affect the nose or the lower parts of the throat, and in either of these cases no membrane can be seen; difficulty of breathing may develop owing to the blocking of the air passages by the membrane. The best treatment for such cases is a dose of anti-diphtheritic serum given under the skin, and often this injection has to be given as a preventative to persons who have been exposed to infection; the quarantine period is 14 days and the period of exclusion 6 weeks or until all discharges have ceased and the throat swabs are negative; sometimes cases of nose diphtheria with chronic discharge are overlooked or allowed to come back to school, and may be the cause of fresh cases of the disease. The after-effects are anæmia, weakness and paralysis of certain parts, such as the palate, the legs, the eye-muscles, and the heart, due to the poisoning of the nerves; in consequence children who have had diphtheria must be watched for paralysis and for heart weakness.

There are other causes of sore throat such as rheumatism, influenza, and follicular tonsillitis, but a sore throat must always be regarded with suspicion and a watch kept for the appearance of a rash or of a membrane.

Conjunctivitis.—"Cold in the eye" or inflammation of the membrane lining the eyelids and covering the front of the eyeball may occur in epidemic form in children. The discharge from the eyes is usually very infectious, being carried from one child to another by soiled towels, handkerchiefs, hands, clothes, and other means. A lowered state of health, rheumatism, and other diseases, or the presence of a particle of dust or grit, may be the cause of the isolated cases. If the inflammation is limited to the conjunctiva and does not cause ulceration of the cornea (which is the transparent membrane in front of the pupil), there is not much danger to sight, but the possibility of the presence of such an ulcer must always be borne in mind, and no cases should be neglected. Conjunctivitis, though not always actually painful, usually gives rise to much discomfort, and the discharge may become purulent and copious. Frequent bathing with boracic, alum, or other astringent lotions and with warm water is necessary, and the use of yellow oxide of mercury ointment at night-time will usually prevent the eyelids from sticking together. The general health should receive attention, and strict measures must be taken to prevent the spread of infection, any cloths contaminated with the discharge being burned or well boiled and the case or cases being isolated if necessary.

Ringworm.—Ringworm is a disease which most commonly affects the scalp, but may attack the skin of the body or limbs. It

spreads from one child to another by actual contact or by infected caps or brushes. The disease is caused by a fungus which attacks the hair, causing it to become brittle and break off. The fungus extends down to the root of the hair, so that the part left in the head is still infected. The diseased areas take the form of rings which appear as baldish patches, showing a sparse stubble of broken-off hairs. If on the skin of the body the fungus forms circles, more or less complete, marked out by a reddened line. If left to itself the disease persists for months or years.

The treatment of ringworm of the scalp is rendered difficult because the fungus is deep down in the roots of the hair and cannot be readily reached. The hair should be cut off close over and round the patch and a careful inspection made for other diseased areas, which are generally more numerous than was at first suspected. The hair must then be washed with carbolic soap and an ointment of oleate of mercury (5-10 per cent.) should be applied, the rest of the scalp being rubbed with carbolic oil. The treatment needs considerable patience, and must be continued for some time. When the fungi have been killed the hair begins to grow again. Some cases are very difficult to cure, because the ointment does not reach the roots of the hair, and in such cases the best results are obtained by applying irritants that cause inflammation and so destroy the fungi or by suitable x-ray treatment.

Though treatment has to be continued for some time, there is not much likelihood of the disease spreading to other children after one or two thorough applications of mercurial ointment have been made; therefore isolation is not necessary when treatment has been carried on for a day or two, if a cap is worn and precautions re brushes, etc., are taken.

Pediculosis.—Pediculosis or lice in the head is a very common and disagreeable affection. The pediculi lodge in the hair of the head, most commonly over the ears, and lay their eggs as nits on the hair. The lice cause a good deal of irritation, so that, through scratching, sore places, scabs, and matting of the hair are often present. The glands at the back of the neck may become enlarged, and there may also be a considerable degree of anæmia and irritability. Pediculosis chiefly affects girls because they have long hair, and, since the lice pass very readily from one girl to another, one infected head, if overlooked, may be the cause of a large outbreak. Since children may be infected anew from visitors or other persons, it is necessary to keep a sharp look out for such cases. Practically in institutions it is better to arrange for all the girls to have their hair cut short and to keep it so.

The treatment of pediculosis is really quite simple if undertaken systematically and thoroughly. First the lice must be killed. If the head is not very sore, a thorough washing with methylated spirit will effect this or a compress of lint that has been soaked in carbolic lotion (1 in 20) is equally efficient if left

on all night. Neither of these measures affect the nits or eggs on the hair, so that if nothing further is done these hatch out and give rise to fresh trouble. The most effective and ready way of killing the nits is to soak and comb the hair through with Oil of Sassafras, which, though it has a powerful smell, is not unpleasant.

If this application is made thoroughly for three successive days, the vitality of the nits is destroyed, and they soon drop off instead of hatching out. Of course, the whole treatment is rendered much more easy if the hair is cut short, and, if there are many sores, this is essential. Scabs and sores can be softened by fomentations and treated with mild mercurial ointments. If sores are present irritating applications like Oil of Sassafras cannot be used at first.

Pediculi may be found on the body and lodging in the clothes, but they are far more common in the head.

Impetigo.—Impetigo is a skin affection in which there are numerous spots filled with matter on various parts of the body; the spots may run together, the discharge from them forming yellowish crusts and scabs. There is a contagious form of impetigo, which may give rise to an epidemic. A child with impetigo is usually in a low state of health, needing general tonics as well as local treatment. The scabs or crusts should be softened by bathing and fomenting with hot water, and, when the crusts have been removed, a mercurial ointment should be applied to the surface. If a large surface is involved, the ointment must be a weak one. The bowels must be regulated and the general condition improved. Impetigo sometimes complicates scabies and pediculosis, or it may follow a cut or abrasion that has got dirt into it and become infected, the spots then developing in the surrounding areas of the skin and forming patches with characteristic yellowish crusts and scabs. Chicken-pox gives little yellowish spots which are similar to small impetigo pustules, but they are much smaller, more uniform, and come out in crops. Any sore place may, by infection through scratching, become impetiginous in nature.

Boils (Furunculosis).—These are usually due to a lowered general condition and an impoverished state of the blood. Medicinal treatment with iron, regulation of the bowels, dieting, and open-air exercise are necessary, and the boils themselves may have to be incised and fomented. In some cases boils are very persistent and difficult to cure.

In large institutions trained nurses should be provided to do the necessary dressings and carry out the medical officer's instructions. They should have some knowledge and experience of cases of infectious disease.

CHAPTER X

THE CELL, REPRODUCTION, AND HEREDITY

Bi-Parental Reproduction.—Every human being is made up of millions of cells, which are of different size, shape, and function in different parts of the body. Also every human being has originally sprung from two cells, one coming from each parent, the male cell being known as the spermatozoon and the female cell as the ovum. These two cells unite and fuse, this marking the conception of what, under ordinary circumstances, will develop into a complete human being. The fused mass is endowed with the power of so developing.

Soon after this fusion or conception, growth accompanied by rapid divisions takes place. In this way arise enormous numbers of cells, which take on various shapes and forms, and are gradually evolved into the complete human body.

Weismann's doctrine of the continuity of the germ-plasm.—It is now generally accepted by biologists that the germinal or germ-plasm, which contains all the cells which have to do with reproduction, is continuous, passing from one generation to another and remaining more or less specialised and distinct from the somatic or body plasm.

Each man or woman or child is therefore but a temporary dwelling place for the germ-plasm, which passes on to originate new and successive generations.

It is important to note, however, that each conception introduces a new element, since fresh germ-plasm is added from the other parent.

We can now see that the germ-plasm is not a new structure developed by the body cells of an individual. It exists before the body cells and produces them. A prospective parent therefore contains the germ-plasm from the very first moment of his or her origin, *i.e.*, at the conception by his or her parents. It is important to understand these points, because we have to decide whether the germ-plasm is susceptible to influences such as poisons, drugs, diseases, or deformities that have affected the body-plasm.

First, it must be clearly understood that deformities which have affected the body cells cannot affect the germ-cells, so that they, in the next generation, will produce an individual with a similar deformity: nor are characters (such as immunity to disease) which have been acquired by the body cells impressed on the germ cells.

By far the most important influences acting on a germ-plasm of either good or bad stock are those introduced by fusion with the germ-plasm of the other parent. Should this other germ-plasm be of bad stock and contain a taint of inherited disease, that taint contaminates the good stock or intensifies the taint in an already bad stock. The result may or may not be evident in the next generation, but a good stock has become a tainted one or a bad stock has become worse in this way.

This mixture of stocks, which may be for good as well as bad (for bad stocks may be raised by union with good stocks) is therefore the most important factor that influences the germ-plasm.

As an instance of a taint contaminating a good stock, the Kallikak family may be quoted. Dr. Goddard has traced out this family (fictitiously named Kallikak) back through five generations to one Martin Kallikak, who founded both branches. In the first branch the mother was a feeble-minded girl of unknown origin and heredity.

The child born to her and Martin Kallikak was illegitimate and feeble-minded. Marrying later a woman of his own class of good stock, Martin Kallikak founded the second branch in which there was no taint of mental defect.

The descendants of each of these two branches have been traced by Dr. Goddard through five generations, and are nearly equal in number. The comparison is striking. The first branch from the feeble-minded mother has numbered 480 in five generations. Only 46 were quite normal, many were wild and eccentric if not actually defective, and 143 were definitely mentally defective; 36 were illegitimate children.

The second branch, legitimate and of good stock, has numbered 496 in five generations. They have all been normal, and many of them have been high in professions.

Heredity.—Heredity is “the capacity of a plant or animal to reproduce individuals of a like kind.”

Departures from this rule of like begetting like are known as variations. They are (1) inborn and due to a peculiar development resulting from defect in either or both of the germinal cells; (2) acquired and due to outside influences acting after the embryo has formed: the latter are known as modifications.

Inborn variations may be of several types. They may be either (1) progressive or forming an advance on the previous generation; (2) retrogressive or on the backward grade.

Thus a person who, born of average parents, is gifted with some power which raises him above the average, is a variation of the progressive type; and a person, whose innate characteristics render him less able to compete with his fellows or to survive, is a variation of the retrograde type. It is natural for the human race to vary in this way, some on the upward grade and some on the downward, but there is also always a

tendency to return to the average mean, and for this reason both progressive and retrograde variations tend to disappear in future generations.

(3) Reversive, when there is a sudden reappearance of a character exhibited by some previous and remote ancestor and not by the parents.

It is now generally accepted that the child develops from the germ-plasm. This is formed before the parents have acquired any variation, so that it is almost certain that no acquired variations are transmitted, and it follows that the nourishment and surroundings of the parents *before conception* of the offspring have no effect on the *inherited* characters handed down.

However, some authorities suggest that the germ-plasms of stocks tainted with mental trouble are unstable and unbalanced, so that toxic influences may determine a variation that would not have appeared under favourable conditions.

One of the effects of civilisation is that Nurture is opposed to Nature. If Nature holds undisputed sway the unfit are not able to live, and consequently die out sooner or later; but if Nurture is called in and the unfit are helped in every way, they are enabled to live, and to propagate and keep in existence a tainted stock.

Natural selection has a great salutary effect on our evolution, and nowhere is its influence more effectively exercised than in determining inherited immunity from disease. If a race is subjected to a disease, those springing from germ-plasms with a poor resisting power are gradually eliminated, and the race, which now springs chiefly from germ-plasms which have inherited a high resisting power, becomes more able to fight against the disease.

Mutation.—It is possible for a new species to arise by a sudden jump from the parent species. These sudden jumps are known as mutations and give rise to sports, which are individuals with a definite new characteristic;

but it must not be thought that these sports necessarily vary much from the parent species. Mutation is usually very slight though it is none the less definite, and it may be (1) progressive, (2) retrogressive, or (3) regressive, *i.e.*, harking back to a previous ancestor more or less remote.

Another point is that these mutations breed true if mated together, and, if fitted to survive, will form and perpetuate a new species.

The mutation theory therefore holds that new varieties, *i.e.*, individuals exhibiting new and distinct characters, arise suddenly and from no apparent cause.

It might be expected that an accumulation of the effects of environment would tend to produce these sudden jumps, but though this may be the case, there is no weighty evidence in its favour. Indeed, the origin of sports is often quite independent of the environment. It must also be remembered that Natural Selection comes into play, and as a rule only those mutations that are suited to their environment can survive; further, if these mutations are to survive and not be swamped, it is necessary for them to arise in sufficient numbers to breed with one another and to have offspring.

Mendelism.—Mendelism teaches us to look on the germ-plasm of the animal or plant as a composite body made up of a great number of determinants, or controlling forces. These forces come together in an individual, and, instead of fusing and blending, some are dominant and some are latent. The individual expresses the dominant character, and at the same time may carry in his germ-plasm the latent character and hand it on to a later generation. Should this latent character meet with certain conditions in the next generation, it may in its turn become dominant. Should it not, it may finally become bred out and lost.

Mendel also showed that, with plants, unit characters

did not blend, but in succeeding generations sifted out into constant definite ratios. Thus, crossing a tall pea with a dwarf one (tallness and shortness being unit characters) gave a first generation of offspring "All tall." But the dwarf character was latent, because when this generation bred without further crossing, there were now three tall to one dwarf. The latent character was beginning to show itself, and it came out in a definite ratio.

It can be seen, therefore, that a taint or trait may be latent and miss a generation, and yet be evident in later generations. Thus several well-known examples of this in the form of various deformities.

It is not advisable here to enter more fully into the question of the relation of Mendelism to Mental Deficiency, because, although the matter has been widely discussed, there is no decisive evidence. It is exceedingly difficult to obtain reliable evidence regarding the human race, and we cannot say yet that the laws of Mendelism apply to the human race as they do to plants.

Biometry.—Galton and Pearson formulate laws of Ancestral Inheritance, arguing that it is possible to express numerically the amount of inheritance received by an individual from parents, grand-parents, or great grand-parents.

This method is called "Biometry," and it aims at the elucidation of the problems of heredity by the collection and skilled interpretation of large numbers of accurate statistics.

The laws of Ancestral Inheritance as formulated should, however, be taken as applying to masses and not to individuals.

CHAPTER XI

THE CONDITION OF THE BRAIN IN FEEBLEMINDEDNESS.

The Life-History of the Child after Conception.—The accompanying diagram (modified from Ballantyne) shows that, after conception, there are three periods :—

- (1) The period of intra-uterine or ante-natal life, which is sub-divided into the embryonic and the foetal periods.
- (2) The natal period, when birth takes place.
- (3) The post-natal period, when the child leads a separate existence.

It is necessary to point out and emphasise that conception and not birth marks the beginning of the life-history of the child.

During the period of intra-uterine life the development and growth of the body-cells takes place; therefore these cells are subject both to extraneous influences transmitted through the mother's blood, and to the innate or internal influences, which cause them to continue to grow, and to develop.

Two processes, development and growth, occur, and a certain amount of distinction must be made between the two, development being practically a formative process and growth being increase in the size of the miniature human being.

The period of formation is surprisingly short compared to the period of growth. At the end of eight weeks from conception most of the gross formative processes are complete, the remaining seven months

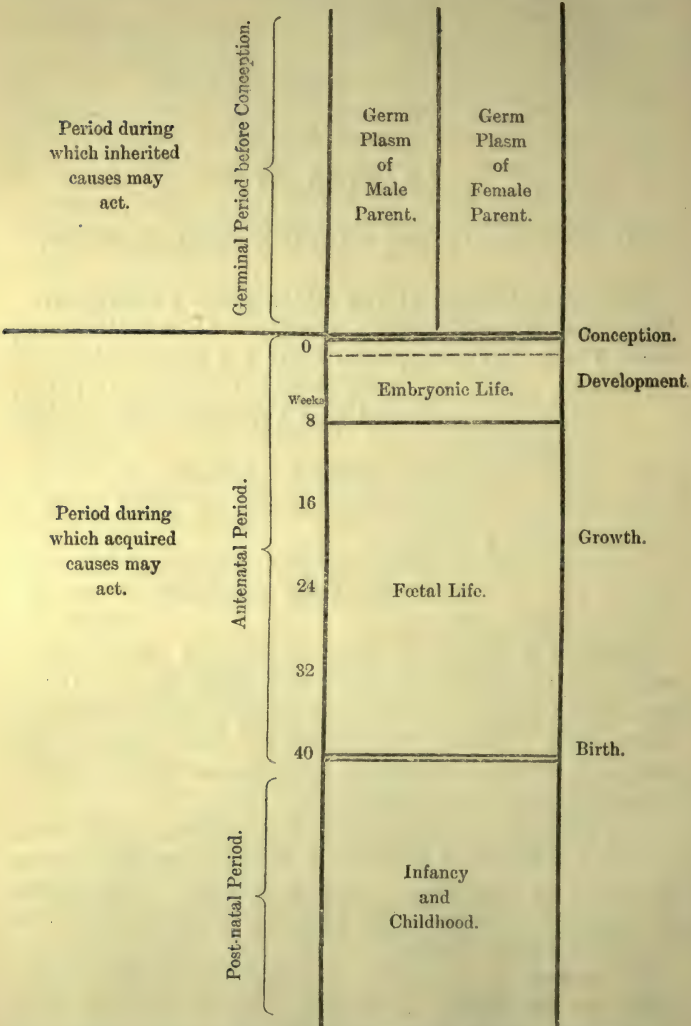


Diagram I., showing the periods preceding and following conception.
(Modified from Ballantyne).

being the period of growth. The first period is known as the embryonic and the second as the foetal.

The formative processes, which take place during the first weeks of intra-uterine life, are so rapid that at the sixth or seventh week the embryo has already taken on the face and form of a human being, and the different processes, though not perfected, have largely been determined by this time.

After this week there is a slackening of development and an acceleration of growth. The foetus is now nourished by the maternal blood, which passes through the placenta to the foetal heart, thence going first to the head and brain. The fact that the blood goes first to the brain shows that it is necessary for that organ to receive better blood than the body and limbs at this period.

The Brain.—We are chiefly concerned with the development of the brain, and, as might be expected, the formation of so complicated and intricate an organ is not completed so rapidly as the formation of the body and limbs. The main parts of the brain are formed fairly early, so that at the sixth month of intra-uterine life the organ has acquired its general shape but has not developed its fissures. At birth it is much more advanced but by no means completed, and for the first six months after birth there is very rapid growth and development.

According to Tredgold the brain weighs at birth about 300 grammes, and grows until it weighs 650 grammes at the end of the first six months, 750 grammes at the end of the first year, and about 1,200 grammes at the end of the fourteenth year. This increase is due to the development of nerve cells and their processes. The parts of the brain which control the association of impressions and ideas are the last to be developed. They are made up of a complex system of fibres linking up the various centres. This is important when we

see that most of the higher intellectual faculties depend on the powers of association and ideation.

The actual period when birth is taking place is a critical one, since the infant is exposed to considerable risks from accidents or injuries; such injuries may be due to prolongation of birth, which throws a great strain on the blood-vessels of the brain and may lead to their rupture. However, this does not often happen, and gross injuries such as effusions of blood affecting the brain, usually cause marked physical deformities and paralysis, so that, if the child survives, he will be a mental and physical cripple belonging to one of the special types. (See Chapter VI).

After birth the child may be exposed to injury and disease, which, by causing inflammatory mischief, may give rise to mental deficiency, but such cases again are not common.

Pathology.—When considering pathology it must be pointed out that idiots, imbeciles, and the feeble-minded all come in the same category, the difference being one of degree only.

Most writers are agreed that the brains of the mentally deficient do not as a rule show evidence of gross abnormality or disease, though a certain number of cases may do so. Such cases are more likely to be reported, and thus it may be thought that they form a larger proportion of all cases than they really do.

The Nerve Cells of the Brain.—The brain is made up of millions of nerve cells which are embedded in a supporting tissue, the neuroglia. From all these nerve cells processes or branches are sent off to communicate either with the nerves going to the body or else with other nerve cells in the brain. These communicating branches or fibres springing from the nerve cells pass from one part of the brain to the other, from one side to the other, and from the brain to the spinal cord, being, when numerous, collected into great bundles of

fibres. Thus the brain can be regarded as having two systems of fibres—(1) bundles of nerve fibres coming down to communicate with the nerves to the body, and (2) an extraordinarily intricate and complete system of intercommunicating association fibres.

There is no doubt that the intellectual faculties develop and decay with the development and decay of the nerve cells in the brain and their branches. Investigation of brains of lunatics shows that there is a degeneration of these cells leading to a decay of the mental powers, and the brains of idiots show, not a degeneration, but an under-development of these cells, leading to a corresponding under-development of the mental faculties (Bolton).

The period of greatest growth and development of the brain is from its first appearance early in intra-uterine life to the sixth month after birth.

We must remember, however, that the nerve cell needs to be endowed with the innate power to develop, and it is this power that is wanting in most cases of feeble-mindedness. A cell which possesses this power may very occasionally be prevented from developing by some accident, but in by far the majority of cases there is wanting the innate power to complete development.

In mental deficiency the brain is found to contain fewer cells than should normally be present, while at the same time these cells are imperfectly developed. Bolton states that there is no adequate supply. Imperfect development of these nerve cells means that they do not send out the processes and interlinking fibres that are all-important for transmitting impulses, for correlating the various senses, and for association, reasoning, and ideation. There is also an irregular arrangement of the cells, which may be at all angles or upside down. They are also often pigmented. Areas of sclerosis with over-growth of the supporting connec-

tive tissue may be often present also. Sherlock in relation to this states that two conditions may be present; first, there may never have been an adequate supply, and second, that there may have been loss of nerve cells. When gaps in the supply of nerve cells are present it looks as if loss has taken place. Further, Dr. Tredgold, to whose careful researches on this subject we are much indebted, finds that the proportion of immature cells seems to be distinctly in relation to the degree of mental defect.

The human brain can be compared to a well-organised modern community, where overhead there are innumerable telephone and telegraph wires interlinking and co-ordinating the activities of the great centres, which in their turn have channels of communication with the forces they control. Just as a primitive state, in which there has been little development of communication between the various centres of activity, is slow to respond to any call made upon it and falls behind other better organised communities, so the brain of a feeble-minded child is not well enough endowed to allow of efficient self-government.

Again, just as some primitive communities may be comparatively well advanced in some branches and backward in others, so under-development of the mental powers, besides being more or less general, is in many cases of an uneven or irregular nature, some children being especially deficient in one mental process and others in another.

However, this comparison between the feeble-minded child and the imperfectly governed community must not be carried too far, for the two differ in that the community could by effort and application reach the level of other communities, while the feeble-minded child can only be improved to a limited extent, and can never reach the level of a normal child.

Meningitis and Encephalitis.—Meningitis is an inflam-

mation of the membranes surrounding the brain, and encephalitis is inflammation of the brain substance. A combination of the two may occur or a previous inflammation may leave scar tissue which is liable to contract and cause deformity. Meningitis and inflammatory processes can cause an arrest of development, the arrest in this case being not inborn but accidental or acquired.

Comparatively speaking, feeble-mindedness is not often due to meningitis or encephalitis, and cases caused by such lesions come under the heading of secondary mental deficiency. Some observers consider that these inflammatory lesions play a large part in the causation of feeble-mindedness; but it must not be forgotten that, not only may meningitis occur around the brain of a child already feeble-minded, but that the brain of such a child is more liable to inflammatory and degenerative conditions than is that of a normal child.

Both Wilmarth and Wilhete found that evidences of a slow meningitis were not uncommon in the brains of mentally deficient children, but this does not prove that it is not usually a secondary condition rather than the cause of the mental trouble.

Wilhete found that a slow progressive meningitis was more common in the feeble-minded children suffering from fits, and this coincides with clinical observation, for a certain number of cases do not improve with treatment but become steadily worse both as regards the number and severity of the fits and the mental capacity; others, who react to treatment, improve in every way. Gross abnormalities of the brain, such as porencephaly and hemiatrophy, are more common in the brains of the mentally defective, especially in those of the lowest grades, but they are comparatively speaking unusual.

We can conclude from recorded facts that:—

(1) In the majority (90 per cent.) of cases of mental deficiency there is a permanent under-development

and numerical insufficiency of the essential part of the brain tissue, viz., the nerve cells and their branches; and that this under-development is not due to disease or injury, but to an innate want of power to develop.

(2) In the minority of cases (10 per cent.) the power to develop was originally present, but disease or injury either affected the brain so as to prevent normal development or destroyed parts essential to proper mental activity.

Development, Reproduction, and Heredity in Relation to Pathology.—Let us now see how these facts of pathology adjust themselves to the theories of heredity and to our knowledge of development and reproduction.

It has been pointed out that the germ-plasm is continuous, that it has a fresh element introduced by bi-parental reproduction, and that it is subject to variations, progressive or regressive, to reversion and to mutation. It has been shown also that there are rapid formative processes in the period of intra-uterine life making it quite possible that, if the hereditary powers of development are impaired, those processes may remain incompleted.

Primary mental deficiency arises from this *failure of development*, which is due to causes inherent in the germ-plasm, whereby that substance is not able to reproduce in full the highly developed brain of the normal human being, and it is a variation of the retrograde type.

The several reasons for this opinion are based on pathological and other grounds, and are as follows:—

(1) We have already seen that pathological evidence shows definitely that there is an incomplete development of parts of the brains of the mentally deficient, the nerve cells being fewer in number and imperfectly formed. Thus the mentally deficient do not show new or mutational characters, but general incompleteness of development.

(2) The children born to two parents, who are both mentally deficient, are not always similarly affected and may be of normal intelligence. I know that this is contrary to the generally accepted opinion, and that there is not much evidence to support this contention. There is no doubt that almost all of the children born under such circumstances are mentally deficient. However, Richardson quotes an example where a child of normal mental powers was born to two parents, who were both mentally deficient, the father being a feeble-minded boy of eighteen and the mother a feeble-minded girl of sixteen. It seems, therefore, that even when both parents are feeble-minded the children will not necessarily be feeble-minded, though the tendency for them to be so is very strong indeed. In my opinion mental deficiency is a variation and not a mutation; if it were a mutation all the children born to parents who were both mentally deficient would be similarly affected. There is also to be borne in mind the law of heredity, which states that there is always a tendency to return to an average mean.

(3) About the same time as important developments take place in the brain there are important formative processes going on in structures which, as we have seen, are often imperfect in the feeble-minded. Such structures are the external ear, the palate, the fingers, the eyelids, and other deformities which constitute the stigmata of degeneration. Ballantyne states that the chief formative processes of these structures and those of the brain are completed at about the same time of intra-uterine life. This certainly suggests that there is an incomplete development in the brain as there is in these other parts.

It must be pointed out here that the deficient development of the brain cells may not be evident microscopically till later, but the number of the brain cells is determined, and they are originated and have received their endowment of power to develop much earlier on.

(4) Feeble-mindedness is not likely to be a reversion to a previous type. It has already been pointed out that, as far as concerns a discussion on heredity and the causation of feeble-mindedness, we can put the idiot and the feeble-minded in the same category, the difference being only one of degree.

Now an idiot is far less sensible than the lowest type of the native races or even of the lower animals, for he cannot guard himself against common physical dangers : an aboriginal or low type, if brought to Europe at a very early age, would develop far greater intelligence than the best of idiots or imbeciles, though there is little doubt that he would not approach the European standard ; further, there are mentally deficient animals just as there are mentally deficient human beings, but Natural Selection exerts its influence and such animals die out.

It might seem that some of the more definite types such as Mongols or Microcephalics are sports or mutations, and would breed true to their type ; but this is probably not the case, because the brains show an incompleteness of development rather than any new morphological characters. Microcephaly may be a reversion to an ancestral type of small brain, but it is a curious fact that this deformity sometimes affects more than one of the children of a family and may affect them all.

(5) If mental deficiency were not due to this loss of the innate power to develop, but were due to inflammatory conditions such as meningitis, acting during embryonic and foetal life and determining an arrest of development, it should be more common where disease and bad conditions prevail. But the available evidence points rather to the reverse as being the true state of affairs.

Mogridge states that the ratio of the feeble-minded to the general population is the same in all the States of

the Union, and there is very little difference between the ratio in the United States of America and that of older countries.

When Norway and England were used as illustrations it was thought that alcoholism was responsible for a large amount of the existing feeble-mindedness; but in Iowa, where the drink habit is as low as it can be, there is the same proportion of feeble-mindedness as in the other States.

Nor does pathological evidence show that inflammatory mischief often gives rise to mental deficiency by causing arrested development; it may supervene later, but in such cases does not occur until after the incomplete development has been determined.

Conclusions.—(1) It seems therefore that feeble-mindedness, with the exception of certain types due to definite lesions, is caused by a failure in the process of development, resulting in numerical insufficiency and imperfect formation of the nerve cells and their branches in the brain.

(2) That the incomplete development is due to the inability of the germ-plasm to endow the cells, which are to make up the highly specialised human brain, with power to produce either (1) a sufficient number, or (2) a sufficiently high type of nerve cells to complete the formation of a normal organ. Feeble-mindedness is, therefore, a variation of the backward or retrograde type.

(3) That this incomplete development is lifelong, and is chiefly evident in that the imperfect condition of the nerve cells results in an insufficiency of the association fibres which serve to join up and correlate the various parts of the brain, mental deficiency following as a natural result.

(4) The types described as exceptional in conclusion (1) form a small minority of all cases, and are secondary or accidental types due to injury or disease.

CHAPTER XII

THE CAUSATION OF FEEBLEMINDEDNESS INHERITED FACTORS

THE causes of mental deficiency can be divided into two classes :—

- (1) The inherited causes affecting the parental germ-plasm before conception of the child.
- (2) The acquired causes, *i.e.*, factors that may affect the embryo or foetus in utero, or the child after birth.

So much confusion has arisen owing to misunderstandings as to what are inherited and what are acquired conditions, that it is of advantage to explain here exactly what is meant by these terms.

A reference to Diagram I., p. 168, will show (1) that inherited causes must act before conception, and (2) that acquired factors may affect the embryo or foetus in utero or the child during or after birth. It is important to appreciate that *conception* and *not birth* marks the beginning of life for the child, and that, though for the first nine months the child does not live an independent existence, it has nevertheless started on its career as a human being, has inherited its innate characteristics for good or for ill, and is for many of these months practically a fully formed human being. Therefore, when we divide the causes of mental deficiency into two classes, the inherited and the acquired, by the inherited causes we mean those affecting the parental

germ-plasm before conception of the child, and by the acquired those affecting the embryo, the foetus, or the child. Acquired factors acting on the child through their effect on the mother during the gestation period of intra-uterine life are none the less acquired, and are not inherited in any way.

In Chapter I. cases of feeble-mindedness were divided into two classes :—

- (1) Primary, forming 90 per cent. of all cases.
- (2) Secondary, forming 10 per cent. of all cases.

Though the causes of feeble-mindedness are by no means clearly defined, it seems probable that class (1), the Primary form, is caused by what is called the Neuropathic Inheritance, with or without one or more of certain reinforcing factors, which are either inherited or acquired; and that class (2), the Secondary form, is caused by disease, inflammation, or injury.

We can now proceed to tabulate and discuss the causative factors under their several headings.

Inherited Factors.—The Inherited Factors are best tabulated as follows :—

Inherited factors affecting the parental germ-plasm before conception of the child.	(a) Transmitted neuropathic taint, giving neuropathic inheritance.	<div> <div></div> <div> Mental deficiency. Insanity. Epilepsy. (<i>Hysteria and Neurosis.</i>) </div> </div>
	(b) Vitiating disease or habits.	<div> <div></div> <div> Alcoholism. Tuberculosis. Other debilitating disease. </div> </div>
	(c) Sociological factors.	<div> <div></div> <div> Ages of parents. Blood-relationship or Consanguinity of parents. </div> </div>

(a) Neuropathic Inheritance.—There is no doubt

whatever that by far the most important cause of feeble-mindedness is an inherited taint of certain affections of the nervous system, such an inheritance being described as the *Neuropathic Inheritance*. These affections of the nervous system, which have such a far-reaching effect, are mental deficiency, insanity, and epilepsy. They seem to be quite interchangeable as far as heredity is concerned, though the descendants of persons afflicted with each disease are more likely to suffer from the same trouble: this is especially the case with epilepsy, Gowers finding that 50 per cent. of the descendants of epileptics were similarly affected.

A family history of insanity, epilepsy, or mental deficiency occurred in 48.4 per cent. of 1,000 Manchester cases of feeble-minded children,* and, if it had been possible to obtain all details, this percentage would probably have been increased, since Tredgold, after making a more searching enquiry into a smaller number of cases, found a neuropathic inheritance of epilepsy or insanity in 64 per cent. We have already seen that the Royal Commissioners for the Care and Control of the Feeble-minded (1908), after hearing a large amount of expert evidence, summed up conclusively in favour of the inherited nature of feeble-mindedness.

A history of neurosis or hysteria or other manifestations, pointing to an unstable nervous system in either

*A study of the family histories of 1,000 cases of feeble-mindedness seen in Manchester gives us the following general conclusions: 48.4 per cent. showed a family history of insanity, epilepsy, or mental deficiency, the three inherited causes of neuropathic inheritance. In 6.8 per cent. of these there was a combination of the two or three factors.

Including alcohol and tuberculosis, 69 per cent. showed a history of one or more of the causes classed as inherited.

As we shall see, these figures are not of any great value, especially as regards indefinite conditions like tuberculosis and alcoholism, where only the most complete family histories are of real value. The family histories were very carefully taken, but the unwillingness and ignorance of parents giving the information made them incomplete and inexact in many instances.

of the parents, may show that the child comes from a bad stock; but such conditions as neurosis and hysteria are very indefinite, and include a large variety of symptoms that may be due to several causes other than an innate weakness of the nervous system.

The neuropathic inheritance is enough in itself to determine feeble-mindedness, but it may be reinforced by some additional factor; additional factors such as disease or poisons will be discussed later, but of more importance is an hereditary taint on both sides of the family, the one taint reinforcing the other.

Therefore the neuropathic inheritance, whether it is reinforced or not, is by far the most important cause of primary mental deficiency.

Unless this fundamental fact is fully appreciated and widely known little can be done to reduce the numbers of the feeble-minded. The recommendations of the Royal Commissioners, the efforts of the American States, and the work of all the best societies are based upon the fact that feeble-mindedness is inherited and inbred, or, as the Commissioners put it, "spontaneous" and not necessarily developed as a result of the bad influences of environment or disease.

Order of Birth of Parents.—The late Dr. Hunter, of the Royal Albert Institution, showed me the results of his enquiries into the pedigrees of families containing mentally deficient persons, and he proved that mentally deficient children are found much more commonly in the families of those who are the first-born of the earliest-born members of the branch that is affected by the hereditary taint: the first-born are more likely to have mentally deficient children and next to them the second-born, and so on, there being a more or less steady diminution in the tendency to transmit the taint as the parent comes later and later in his or her family. Thus it seems that if there is an hereditary taint in a family, the first-born are the most likely to transmit

that taint, though not necessarily to show it themselves. To be of any value in illustrating this point the family history should go back beyond the parents and also include the father's and mother's places in their respective families. Further investigations are needed to establish these results as facts, but they are very striking.

(b) Vitiating Disease or Habits.

Alcoholism.—Much has been written on the effect of alcoholism of the parents as a cause of mental deficiency. One of the most valuable and recent accounts will be found in the *British Journal of Inebriety*, January, 1909.

Most of those who support the view that alcoholism has a great effect in causing mental feeble-mindedness base their conclusions on statistics. Now statistics concerning alcoholism are, as a rule, utterly worthless for two reasons: (1) because many people are not clear as to what is meant by alcoholism; and (2) because only personal and intimate knowledge of the habits of both parents is of any real value for statistical evidence, here-say evidence being open to many objections.

Therefore let us first understand clearly what is meant by alcoholism, and then let us see how alcohol can possibly act.

The Royal Commission find that 60 per cent. of chronic inebriates are either mentally deficient, or are persons of such unstable mental balance that they are subject to violent outbreaks from small doses of alcohol. These are the individuals classed as chronic inebriates, who send up our records of drunkenness. In reality, like moral defectives, they are the unfortunate inheritors of mental instability, and if they are the progenitors of mentally deficient children, it is because they come from an afflicted stock and not because they have poisoned themselves with alcohol. Their tendency to

alcoholism is simply evidence of the neuropathic inheritance. On the other hand, there are many quiet drinkers who continuously poison their systems with alcohol but are not known to their relations as drunkards.

These points show how difficult it is to obtain definite and reliable evidence on this problem, and it is only to be expected therefore that statistics will vary very much. The following figures are given to illustrate the uselessness of drawing conclusions from any but the most accurate and complete family histories.

Barr found a family history of alcoholism in 4.4 per cent., Beach and Shuttleworth in 16.4 per cent., Bourneville in 62 per cent., and Tredgold in 46.5 per cent. The last author points out that, in five-sixths of these family histories showing alcoholism, there was also a neuropathic heredity. The Manchester cases showed 9 per cent. Much the same result is obtained in comparing the statistics concerning a family history of tuberculosis. Tuberculosis is so common and so varied that family histories given by any persons other than medical men are usually misleading.

Memoir X. of the Eugenics Laboratory (Pearson and Elderton) illustrates these points more fully, and a careful analysis of the family histories shows how slight may be the effect of parental alcoholism on the children.

According to the views of many eminent neurologists, alcohol has a much greater poisoning effect on a stock already tainted with a neuropathic inheritance than on an untainted stock. If this is true, it is more likely that parental alcoholism may have a definite action purely as an accessory or determining cause. We have no proof of this beyond the fact that neuropaths are certainly very much more susceptible to alcohol than are persons of sound nervous system. Mott comments on the rarity of alcoholic cirrhotic disease of the liver in asylums, a fact which points to the rarity with which

mental degenerates take enough alcohol to poison their tissues. More often they are subject to violent outbreaks from taking small quantities, followed by forced or voluntary periods of abstinence with freedom from its toxic effects. It is possible, therefore, but by no means proved, that alcohol has a selective action on the nervous tissues of neuropaths.

The effect of alcoholism in the mother during pregnancy and *after conception* is not an inherited factor, and is discussed later under acquired causes.

Tuberculosis.—Much of what has been said concerning the family histories of alcoholism applies also to those of tuberculosis. As in the case of alcoholism, little reliance can be placed on statistics, for (though I am convinced that tuberculosis is commoner in the families of the mentally deficient than in those of normal persons) it is very difficult to obtain reliable histories. It is well known that the insane are especially liable to suffer from tuberculosis, this tendency being due to a weak resisting power to infection and to the effects of the disease. We have not noticed that the children at Sandlebridge are especially liable to tuberculosis, but their lives are lived under conditions especially unfavourable to the development of this disease. Tredgold states that, in conjunction with nervous abnormality, these two factors, alcoholism and tuberculosis, have a great importance in the causation of idiocy, imbecility, and many other morbid conditions of the nervous system.

My conclusions concerning tuberculosis as an inherited factor are similar to those regarding alcoholism, though I am inclined to the opinion that tuberculosis is more likely to have an effect than is alcoholism.

Syphilis.—It is almost impossible to find reliable statistics of the effect of syphilis acting as an ante-conceptional cause in the production of mental deficiency. Most of the authorities on the subject say that it has very little effect, and certainly as far as statistics go this seems

to be the case. Statistics as regards syphilis are generally quite useless, because few parents will admit that they have had the disease.

We know a great deal about syphilis as a disease and as a disease that may pass from mother to the child in utero, but this is not true inheritance, and we know very little that is definite about the effect of syphilis on the inheritance handed down.

As a disease syphilis produces great anæmia and debility, and often has a selective action on the nervous tissues, but we have no evidence to prove that it has any action on the germ-plasm. Syphilis often produces death or disease of the foetus, and a child born apparently quite well may develop the disease; but this is not evidence that the germ-plasm is affected. Children born later to the same parents are less likely to be affected, and the fact that they can be quite well-developed when born shows that the innate power to develop is not impaired. The fact that evidences of the disease may only appear some time after birth has nothing to do with inheritance, because the infection is present all the time even though it does not show itself at once.

Dean found that a large proportion of idiots show the Wasserman serum reaction, and Gordon found that of 400 congenital mental defectives 66 or 16.5 per cent. gave a reaction. (Five years and under, 26.5 per cent.; 6-10 years, 15.0 per cent.; 11-20 years, 17.6 per cent.) This reaction is held to be limited to cases with syphilitic infection. There is, up to the present, however, no proof that congenital syphilis can poison or deform the germ-plasm so that the inheritance is altered and the third generation affected.

As we said before, much has been written of alcohol, tubercle, and syphilis as causes of feeble-mindedness, but it has never yet been shown that districts or countries, where these factors are more prevalent or increasing,

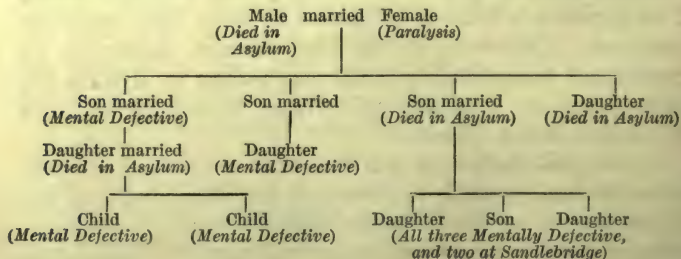
have a larger or increasing proportion of feeble-minded persons; nor, as Ireland points out, has it been shown that more feeble-minded children are born at periods of the year nine months after the times when drunkenness is common (such as the New Year in Scotland).

Further, in countries where there has been a decrease in factors like alcoholism there has been no corresponding decrease in mental deficiency. But since there is no standard system of registering mental defect, the proportion registered depends largely on the number of institutions or organizations in any one district or country. The numbers tend to increase with the registration of school cases, so that nobody can prove at present that the proportion of feeble-minded to the population is increasing or decreasing.

These arguments point to the fact that statistical evidence of the effect of vitiating disease or habits in the parents as an inherited cause of feeble-mindedness is quite inconclusive and unreliable, but the effect of the neuropathic inheritance as the real cause of feeble-mindedness of the primary type is probably great.

Evidence based on individual cases is, if anything, still more convincing. It is easy to quote scores of instances where a feeble-minded woman or man has handed down the trait so that it has persisted through generation after generation. Examples such as that shown in Diagram II.

DIAGRAM II.—SHOWING THE INHERITED NATURE OF FEEBLEMINDEDNESS.



are common, and the Kallikak family quoted on p. 162 is another instance.

It is only right to give great importance to the statistical side of the evidence, but surely the evidence of these and other numberless cases, where feeble-mindedness can be traced like a black stain from one ancestor through many generations, counts for a great deal. However, it does not greatly matter which of the two kinds of evidence we consider to be the more important, for both lead strongly to the conclusion that primary feeble-mindedness is always inherited, and that the acquired conditions, if they have any effect at all, act merely as secondary factors.

At the same time these conclusions agree with the accepted theories of heredity, and do not rest on the supposition that acquired characters can be inherited; many of the arguments advanced periodically as to the causation of feeble-mindedness do rest on such a supposition.

(c) Sociological Factors. Consanguinity.—Consanguinity is one of the traditional causes of feeble-mindedness, and there is much to be said against the marriage of blood relations. Such inter-marriages certainly increase the likelihood of the appearance of any undesirable traits which may exist in the family. As Sanem says, “La consanguinité élève l'hérédité à sa plus haute puissance.” In spite of this such marriages are not a common cause of feeble-mindedness, simply because they are not very common and also because there is not always an undesirable trait to be intensified.

Ages of Parents.—The ages of the parents may have some effect. In the Mongolian form of mental deficiency there is strong evidence to show that there is an exhaustion of the reproductive powers of the mother. Mongols, however, do not form a large proportion of the feeble-minded. Possibly after the usual child-bearing period there is a greater liability with increasing age to bear

defective children, but only because there is an inborn taint which has more chance of coming to the surface when the reproductive powers are weakened. Dissimilarity in the ages of the parents has very little effect, and it is not found more often in families containing feeble-minded children.

Illegitimacy.—There is little doubt that a greater proportion of illegitimate children are feeble-minded, but this is not due to the fact that they are illegitimate. It is because the mother is often feeble-minded, and for that reason has been the more easily led astray.

In the same way a history of a tendency to suicide simply means that there is a tendency to unstable mental balance in the family.

Cancer.—There is no evidence to show that cancer is a cause of mental defect, and it is only mentioned because fallacious statements as to its effects are sometimes made. Cancer could only act as a poisoning and weakening agent, and we have already seen that such conditions have little effect on the germ-plasm. Moreover, cancer occurs late in life after the children have been born. In 8.8 per cent. of my cases there was a history of cancer, a proportion that is no larger than would be found in any list of family histories.

Conclusions as to Inherited Factors.—(1) A family taint of mental deficiency, insanity, or epilepsy, constituting what is known as the *Neuropathic Inheritance*, is the underlying cause of primary feeble-mindedness (90 per cent. of all cases).

(2) Other factors, such as ante-conceptional parental alcoholism and tuberculosis, may have some effect as accessory factors in the production of feeble-mindedness if they are present in conjunction with the *Neuropathic Inheritance*; but there is no conclusive evidence to show that this is the case, and, acting by themselves, they probably cannot have much effect in the causation of the primary type of feeble-mindedness.

CHAPTER XIII

CAUSATION OF FEEBLEMINDEDNESS. ACQUIRED FACTORS

ACQUIRED factors may affect the foetus in utero and the child during or after birth.

They can be tabulated as follows :—

Acquired factors.	Ante-natal acting before birth.	Abnormal conditions of :—	
		1. Mother during pregnancy.	<div style="display: inline-block; vertical-align: middle;"> <div style="display: inline-block; vertical-align: middle;"> <div style="display: inline-block; vertical-align: middle;">(a) Mental shock and stress.</div> <div style="display: inline-block; vertical-align: middle;">(b) Physical Injury.</div> <div style="display: inline-block; vertical-align: middle;">(c) Disease :— Alcoholism. Tubercle. Syphilis.</div> <div style="display: inline-block; vertical-align: middle;">(d) Age.</div> </div> <div style="display: inline-block; vertical-align: middle; font-size: 3em;">{</div> <div style="display: inline-block; vertical-align: middle;">Injury, disease, especially of the brain.</div> </div>
	Natal acting at birth.	2. Foetus.	
		1. Abnormalities of labour such as prolongation with resulting congestion of brain or extravasation of blood.	
	Post natal acting after birth.	2. Convulsions or injury at birth.	
		1. Cretinism or deficiency of the thyroid gland.	
		2. Epilepsy and convulsions.	
		3. Sense-deprivation.	
		4. Injury.	
		5. Infectious fevers.	
		6. Brain disease.	<div style="display: inline-block; vertical-align: middle;"> <div style="display: inline-block; vertical-align: middle;">Meningitis.</div> <div style="display: inline-block; vertical-align: middle;">Encephalitis.</div> <div style="display: inline-block; vertical-align: middle;">Syphilis.</div> <div style="display: inline-block; vertical-align: middle;">Tumour or abscess.</div> <div style="display: inline-block; vertical-align: middle;">Sunstroke.</div> </div> <div style="display: inline-block; vertical-align: middle; font-size: 3em;">{</div>
		7. Mental shock.	

Ante-Natal.

(1) *Abnormal conditions of the mother during pregnancy.*

(a) **Mental Shock and Stress.**—In about 10 per cent. of cases there is a history of abnormal mental conditions of the mother during pregnancy. It is not uncommon for a mother to attribute the mental trouble in her child to some shock or fright she herself has sustained during pregnancy, but there is little doubt that such shocks in themselves have only a small effect on the foetus, and in any case the liability to these shocks often points to an unstable nervous system in the mother. Ballantyne discusses the literature of this subject, and comes to the conclusion that mental impressions have little effect on the foetus. Very often such mental shocks gain an exaggerated importance each time the mother repeats her tale. Again, many of the shocks are sustained late in pregnancy long after the foetus has been formed, a point which should be thought of when mental impressions are said to have caused physical deformities resembling in nature the origin of the fright. Continued anxiety and mental stress act on the mother as a debilitating factor.

(b) **Physical Injury.**—Physical complications are much more likely to have an effect. A fall or injury to the mother may well injure the foetus. Peterson found in some children post-mortem signs of an old brain lesion, which must have caused death had it occurred while the child was leading a separate existence. But these cases, if mentally affected, generally show the result of their injury in physical disabilities and form the cerebral diplegic type of feeble-minded children.

(c) **Disease.**—Any of the general constitutional diseases or other debilitating conditions attacking the mother may have a toxic effect on the embryo or foetus if it presents any weak points to their attack and if the

attack comes early in intra-uterine life. In this connection an inherited instability of the nervous system in the embryo might possibly be a weak point offering a poor resistance to any toxin, especially if that toxin had a selective action on the nervous system.* But practically it is very doubtful whether these abnormal conditions of the mother during pregnancy have any effect at all on the development of the brain of the embryo even when this inherited instability is present. A history of such disease is quite common in the mothers of sound and healthy children, and alcoholism and tuberculosis are examples of these constitutional debilitating conditions, but feeble-mindedness is not more common where these are worst. In discussing the effect of alcoholism during pregnancy there is much to be said on either side, and a full account can be found in the *British Journal of Inebriety*, 19th January, 1909. Dr. Potts, in that discussion, attaches much importance to maternal drinking during pregnancy as a potent influence in the causation of mental degeneracy.

But on the other hand statistics can be found showing that there is no relation between mental and physical weakness in the children and drinking in the mother. (Mem. X. Eugenics Laboratory.)

Experimental evidence shows that alcohol is a poison to the tissues, but that does not prove that it can pass from mother to foetus and arrest development; and, often, the very fact that the mother drinks is evidence that she comes from a neuropathic stock.

The only decision to which we can come is that there is no conclusive evidence on either side, and we can but infer that alcohol as a cause of feeble-mindedness acting (1) on a foetus untainted with neuropathic heredity, probably has no effect in altering or arresting development, but acting (2) on a foetus already so tainted and possessing a weakened nervous system, its toxic

* See discussion, p. 185.

influences may possibly have a determining and secondary effect.

Active tuberculosis in the mother during pregnancy does not mean that the child will be weakened physically, since children born under such conditions are often quite well-nourished and, if effectively protected from infection, develop normally. Evidence points to the fact that the tubercle bacillus only passes from the mother to the foetus in very exceptional instances indeed. We have already seen that mental degenerates show a weak resisting power to tuberculosis, and we conclude that, with tuberculosis as with alcoholism, there is little reliable evidence to show that either acting on the mother during pregnancy can determine feeble-mindedness in the child.

(d) Age.—The age of the mother may have some effect but many deficient children are born early in the family. Mongolian imbeciles are often the last children of a large family, and it has been suggested that this condition is the result of a wearing out of the reproductive powers of the mother by repeated pregnancies.

(2) *Injury and disease of the foetus.*—Injury and disease of the foetus during intra-uterine life are not common causes of feeble-mindedness. We have previously described how sometimes the foetus may sustain an injury to the brain which would have caused death if the child had been living a separate existence, and how such injuries may cause the type of mental deficiency known as cerebral diplegia; but these cases are comparatively rare.

Natal Causes.—Factors acting at birth such as prolongation of labour, protracted pressure, asphyxia neonatorum, and injury have little effect in the causation of the ordinary or primary type of feeble-mindedness. They may cause a comparatively gross lesion of the brain and some accompanying physical deformity, but such cases belong to the secondary form and consti-

tute a special type. Difficulties at birth may or may not be noted in taking the history, but they are not more common in the histories of feeble-minded children than in those of ordinary children, and they are often given an exaggerated importance by parents anxious to explain the mental state of their child.

Prematurity may give a greater liability to physical weakness, but it is not necessarily a handicap to mental development.

Post-Natal.

(1) *Cretinism*.—Cretinism, due to deficiency or loss of the effect of the secretion of the thyroid gland, is one of the special types of mental deficiency, and has already been discussed in Chapter VI.

(2) *Epilepsy and Convulsions*.—Apart from epilepsy, infantile convulsions are common in the feeble-minded.

Convulsions are paroxysmal attacks characterised by irregular and purposeless contractions of the muscles, and are usually accompanied by unconsciousness. Since attacks of abdominal or other pain may be mistaken for slight convulsions, and since convulsions are often a terminal event in fatal diseases, it is not always easy to obtain a reliable history from the parent. Quite a number of mothers regard convulsions in infancy as inevitable or at least of no importance, but severe ones are, as shown below, really rare in infants of good family history. McIlraith regards them as uncommon unless there is a hereditary disposition. Ashby, referring to the causation of convulsions, said: "The hereditary disposition to convulsions is probably the most important factor."

Severe infantile convulsions are more common in the families of persons tainted with feeble-mindedness, but they are the result rather than the cause of the brain condition.

If an epileptic child is feeble-minded (or if a feeble-

mind child is epileptic) the two conditions are not in the relation of cause and effect but are both congenital, with the exception of those cases in which the fits are due to meningitis and are not truly epileptic.

(3) *Sense-deprivation*.—Sense-deprivation may be the cause of considerable dulness or of slow development, since some of the avenues for the passage of sense-impressions to the brain are cut off. However, it has been abundantly proved that it needs more than the greatest degree of blindness or deafness to produce mental deficiency if proper education can be provided, and the wonderful achievements of Miss Helen Keller are amongst the strongest evidence in support of this. Of course absolute deprivation of all the senses would leave no avenues to the brain, but the point to be appreciated is that neither deafness nor short-sight of any degree causes real mental deficiency.

(4) *Injury*.—Too much importance must not be given to a history of injury because parents, when trying to explain the mental condition of their child, usually discover and exaggerate some fall or blow which they consider to have been the starting point of all the trouble.

Again, a fall may be caused by the first epileptic fit and yet the history given is that of a fall followed by fits. If the fall or blow is followed by unconsciousness for some time with a temporary or permanent paralysis, it may be more important, but such cases are very uncommon, and the history should be examined for hereditary taints.

(5) *Infectious Fevers*. An infectious fever does not cause ordinary feeble-mindedness, and when the mental condition has definitely followed a condition like measles or scarlet fever, as in the case quoted below, it is due to inflammatory processes acting on the brain. In many cases there was mental deficiency before the attack of fever, which had attained an exaggerated importance

in the mind of the parent. An infectious fever may cause sense-deprivation, but this has been discussed above.

W. F., age 5 years; family history negative; child is mentally deficient, and the condition is said to have followed an attack of measles at the age of $3\frac{1}{2}$ years, the child being normal before the illness.

(6) *Brain Disease*.—Encephalitis and meningitis, which are inflammatory and destructive processes in the brain or its protecting membranes respectively, may give rise to permanent mental deficiency, but such cases usually show evidences of physical disease in addition. The pressure of the fluid in hydrocephalus or contraction of scar-tissue in the brain may affect the sensory centres.

Congenital syphilis acting on the child may produce degenerative processes in the brain, but such cases are rare, and generally the disease can be more or less cured by treatment, so that there is little mental dulling.

Sunstroke was said to be the cause of the mental trouble in one of my cases, but it is a very rare condition in many parts of England.

(7) *Mental Shock*.—Mental shock is sometimes given as a cause, but only a hereditarily weak brain would be affected in this way.

Impoverished conditions of the blood, rickets, and poor general health may have an effect on mental development, but produce backwardness and not feeble-mindedness.

Conclusion.—Everything points to the conclusion that the acquired factors have probably little comparative effect in the causation or the determination of the ordinary or primary type of feeble-mindedness, though they do directly cause some of the special types, such as the cerebral diplegic or the hydrocephalic. Primary feeble-mindedness is inherited and is a failure of development, the brain being irretrievably unformed owing to

an inherent defect in the germ-plasm; therefore acquired causes, either natal or post-natal, have comparatively very little effect and, even the pre-natal acquired causes acting on the mother during pregnancy, in all probability, act only as accessory conditions.

CHAPTER XIV

PREVENTATIVE MEASURES AND GENERAL SOCIAL CONSIDERATIONS.

(1) **Lifelong Care Essential.**—We have seen that lifelong care is essential, and that the most forcible argument in its favour is that every feeble-minded person, who is not under restraint, is a menace to the community; not only is such an individual very likely to become a so-called criminal, drunkard, or prostitute, but also he or she may propagate and spread a taint that is wholly bad by having children, legitimate or illegitimate. Obviously it is a necessity to prevent these unfortunate persons from coming into contact with those who are ever ready to take advantage of the weak-willed, and also to prevent them from becoming a prey to temptations which, by reason of their inherent weakness, they are unable to resist. Furthermore, surprising progress is often made under good tuition. The body and mind can generally be trained to some occupation which is useful in that it exercises the mind and trains the muscles. Later the child or adult learns to be of use in a workshop or farm, and in many instances to manufacture articles such as boots, clothes, mats, and cord or to do other useful work.

Feeble-minded children when occupied are probably happier than other children—happier in that they are simpler, more easily amused, and are burdened with fewer worries; but they fall very low when no attempt is made to exercise their minds and bodies, and become a sight and example which often has a degrading and demoralising influence on those around. It is a very

noticeable fact that a child who has had training and has then passed out of supervision, soon goes downhill mentally and physically, since absence of occupation has a far greater influence on the feeble-minded than on the ordinary child in leading to bad habits, dirtiness, and moral degradation.

Efficient supervision and care should enforce (1) constant occupation, and (2) absence of temptation or of bad examples. Feeble-minded persons are so easily led that they quickly copy bad examples and thus develop bad habits. On the other hand, if they are kept free from all vicious influences, they are just as readily guided into lines of good conduct. All schemes for treatment and training must be based on these principles and on the fact that feeble-mindedness is not curable, so that training increases rather than diminishes the dangers unless lifelong supervision is enforced.

(2) Lifelong Care.—It is only necessary to emphasise again one or two points.

First, it is very important that feeble-minded children should come under control at an early age before they have learnt bad habits and while their mental faculties, permanently crippled though they are, can yet be developed and trained on the right lines. To ensure this it is necessary :—

(a) That feeble-mindedness should be diagnosed early, and that efficient measures for ascertainment should be in operation, and that parents should, if necessary, be educated how to care for and train their child.

(b) That, as soon as it is old enough, the child should come under the care of skilled teachers so that its mental powers may be developed as much as possible.

Special day schools at present play their part in (b), but, if children are to be trained at special day schools, some organization for lifelong care and control of those leaving is essential. There is no doubt that state-supported industrial colonies are the best from the point

of view of efficient care and prevention of the propagation of feeble-mindedness, but it will not be possible, for economic reasons, to provide colonies for all the feeble-minded for a long time to come. In *chosen* cases guardianship may be adopted, but, outside institutions, efficient supervision is very difficult indeed. It must always be remembered that the feeble-minded need at all times to be carefully guarded from temptations, and the number of cases that are suitable for guardianship is only small. Boarding-out of feeble-minded children, as it has been done in the past without efficient supervision, can be whole-heartedly condemned, and the work of the After-Care Committee in Birmingham shows how little hope there is of feeble-minded persons retaining a wage-earning post.

(c) It can be readily seen that to attain the above there is need for education of medical men, teachers, and other workers, for education of public opinion, and for education of the parents and relatives of mental defectives. There is need also for progress in knowledge, and this can best be brought about by research. It is the duty of every State to provide grants in aid of education and of research.

(3) Courses Open to Parents or Others wishing to put a Feeble-minded Child under Care under Present Conditions.—Parents or guardians who wish to put their child under efficient care have several courses open to them, but an alleged mentally defective child has first to be examined by a certifying medical officer under the Elementary Education (Defective and Epileptic Children) Act, 1899, and the Mental Deficiency Act, 1913, and the method of dealing with the case depends entirely upon the result of the examination by the certifying officer.

The certifying officer may make any one of the following findings (see form of Certificates, pp. 255-257) :—

(1) Normal and fit for an ordinary school.

(2) Merely backward and dull, and requiring individual treatment in a special class for dull children.

(3) Not able to benefit by instruction in an ordinary school, but a suitable case for a special day school.

(4) A suitable case for a special residential school.

(5) Requiring custodial care, *i.e.*, idiot, imbecile, etc.

The parents or guardians can :—

(a) Pay for the maintenance of the child at a private or a charitably-supported institution.

(b) If they cannot pay the fees of such institutions, they can apply for the admission of their child as a non-paying patient to one of the institutions to which such cases can be elected. But the accommodation for non-paying cases is limited, and it is very difficult indeed to obtain sufficient votes to elect a child to such institutions. They can also present a petition to a judicial authority, asking to have the child placed under control. Here again accommodation is the difficulty.

(c) They can apply to the Poor-Law Relieving Officer, who reports to the Guardians. The Poor-Law Authorities are, however, only required to provide for defectives in their area who are chargeable to the poor laws. For such of these as are mentally defective children the guardians make suitable provision, some being maintained and taught at special residential schools by arrangement with the managers.

(d) They can, through the Education Authorities, send the child, if of school age and educable, to a special residential school or to a special day school if there is one in the district. But the latter provision does not remove the child from home, and the parents usually seek to place the child under control because it is too much for the mother to manage or its behaviour is reacting harmfully on the other children.

(e) They may, if able to afford it and if they can satisfy the Local Education Authority that the child

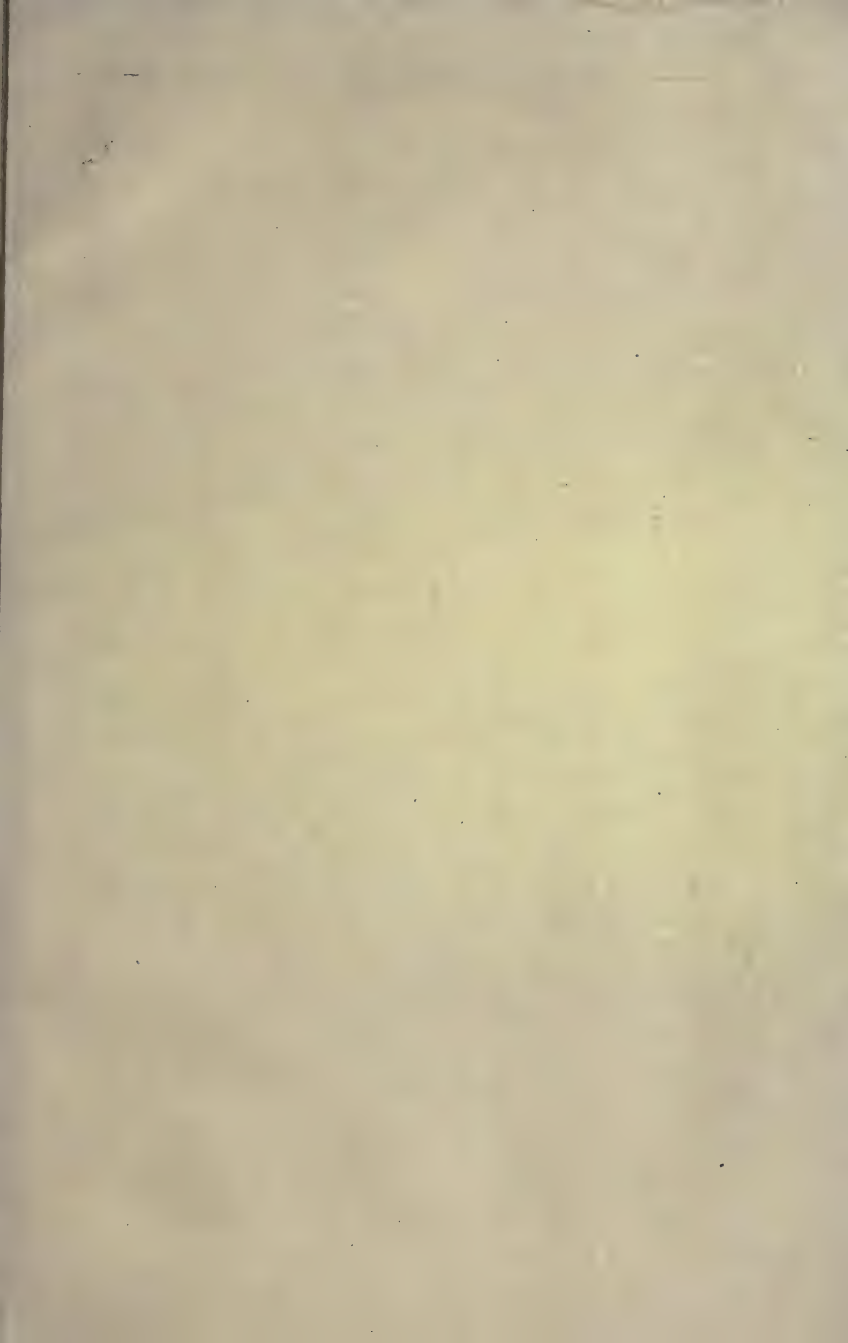




PLATE XI. Three Brothers and a Sister, all Feeble-minded (Ordinary Type).

is under sufficient instruction, employ a tutor and keep the child at home. But such provision is not lifelong, and a feeble-minded child is better as a member of a community than as a single pupil. Also, he should enter that community at an early age.

(4) **Size of Families containing Feeble-minded Children.**—The parents of feeble-minded children are as a rule slightly more prolific and have larger numbers of children than the average.

In 500 families (some of them not complete) each containing one or more feeble-minded children, there were 3,018 children, an average of 6 to each family. The average number of children in the families containing Mongols was about the same, and these families are usually large. In England thirty years ago the average number in a family was stated by the Registrar General to be 4.6, and it is probably less now, but we must not forget that the Registrar General's Report included all classes, while the other figures are taken from the lower classes, where large families are much more common.

The Eugenics Laboratory Memoirs X. states that the average size of the families in Edinburgh is 6.11, and that of Manchester families containing mentally deficient children 6.14.

From these figures it can be seen that the families containing mentally defective persons tend to be large rather than small, and that a considerable number of the mentally defective survive.

(5) **Likelihood of there being other Feeble-minded Children in a Family containing one such Child.**—A question of very great importance often asked by the anxious parent is: "Are future children who may be born to parents of a feeble-minded child more likely to be feeble-minded than the average child?" There is no doubt that they are more likely to be so affected, the proportion working out at 1 in 55 as against 1 in 80 of the ordinary Manchester children.

The following figures prove definitely that families containing a feeble-minded child contain a greater proportion of similarly affected children than do ordinary families. In 830 families containing feeble-minded children, 75 contained more than one. Therefore, taking what from our former figures seems to be a fair average of 6 to each family and excluding the 830 feeble-minded children first mentioned, there were 75 feeble-minded in the 4,150 other children, or 1 in 55. In other words, 9 per cent. of the 830 families contained two or more feeble-minded children.

Microcephalics were not included in these figures, and certainly in the case of these children there is a distinct probability that one or all of the other children will be affected. Families containing Mongols are an exception, and, unlike Microcephaly, it is very doubtful if two cases of Mongolism ever occur in one family. The Mongol is very often the last child of a large family, and it is exceptional to find other children mentally affected; I have only met with one case. On the other hand, one instance of twins, both of which were Mongols, is reported by Dr. Shuttleworth, and two of twins, one of which was a Mongol and the other normal, are reported by Drs. Mitchell and Hutchison.

To turn to other statistics, Tredgold, taking persons of all degrees of mental defect, found 245 idiots, imbeciles, and feeble-minded in 150 families containing 1,269 children. This means that 1 in every 10 or 11 of the other children were mentally defective. Probably if it had been possible to conduct a closer enquiry into the mental state of the 4,150 children of the Manchester families containing a feeble-minded child, a greater proportion than 1 in 55 would have been found to be feeble-minded.

(6) Should the Blood Relations of Congenitally Feeble-minded Children Marry?—It must first be pointed out that in considering accidental or acquired

feeble-mindedness there is no likelihood of handing down any taint, and therefore there is no ban on marriage of the blood relations; but with the congenital cases, which form by far the larger proportion, it is another matter, and there is no doubt that the marriages of blood relations of such cases are attended with very great risk. The mating of the stocks may be such that the inheritance is raised and the undesirable trait is bred out, but the taint may only be latent, and the chief danger of feeble-mindedness is that the taint may spread and ramify through a large number of branches as in the family in Diagram II. One thing is certain, namely, that, if the relations of feeble-minded persons contract a marriage, both sides should have a full knowledge of the risk they run. For this purpose it is necessary that the general public should have a better knowledge of the possibilities of heredity and the dangers of improvident marriages. We can never hope for, and we should not be the better for, the attainment of the ideals of some of the most advanced advocates of Eugenics. We have to contend with a huge jumble of human instincts, human passions, and especially human ignorance, and the masses know little of the teaching of science or the warnings of her most clear-sighted men. But with the growth of education, knowledge of the laws of heredity is becoming more widely diffused, and we can only hope that in the future the spread of such knowledge will increase, and that the efforts at present being made to educate the public will bear fruit.

(7) Surgical Sterilization (Asexualization).—This question is also a very difficult one. It is possible to judge of the results of sterilization, because it has been tried to some extent in America. The results there seem to show that to bad sexual perverts and to those of debased habits, operative measures may at times bring benefit, curing the sexual perverts, eradicating bad habits and sexual appetite, and bringing about a

great improvement in the health of the individual. But evidence is forthcoming that it often leads to a great increase of crime and vice of certain kinds, and that, in women, it generally increases mental weakness. Dr. Fernald sums up that it is not a good measure, that it is liable to abuse, and that it may encourage vice and venereal disease. If children come under control early enough, such measures should not be necessary in institutions. Discipline, cleanliness, and absence of suggestion is, in most cases, a sufficient safeguard.

The operations in themselves are not necessarily dangerous, but opinion against any such surgical measures is very strong and rightly so, one difficulty being that such an operation, if once adopted, might be unjustifiably extended or abused.

Sterilization might be necessary as a preventative measure if lifelong care were not available, for there is undoubted danger to the community from the large numbers of feeble-minded who are not under supervision and who are specially liable to have illegitimate children or to make ill-advised marriages. But the disadvantages of such a procedure are great, and lifelong supervision, which, though more costly, is so necessary for other reasons, should, if efficient, be an equally good safeguard against the propagation of the taint to future generations.

Those who are working for these unfortunate human beings, and who in bad cases, when the results of tuition and training are particularly disappointing, doubtless wonder whether they are really doing any good or not, must realise that all cases cannot be raised to such a level that they are able to do useful work. Teachers and others must be encouraged by the fact that any efforts that promote discipline and mental effort in the feeble-minded are of distinct value in keeping them from falling to low depths of degradation and vice. Surely it is worth an effort when we consider that, if

left to themselves, many of these children, instead of being healthy and at least clean, become, not more like beasts than men, but worse than beasts. One has only to visit the houses of the cases rejected as too bad for the special schools to realise the truth of this and to be appalled by the urgent need of effective remedies.

Summary.—(1) Efficient lifelong care and supervision is absolutely essential.

(2) The legal powers of controlling the feeble-minded are even now insufficient, and those which do exist are not used to their fullest extent.

(3) It is very difficult indeed for parents, who are unable to pay fees, to find accommodation for their feeble-minded child in any suitable institution.

(4) A system of special schools, colonies, and, in very few selected cases, guardianship combined with universal classification and registration is needed, and for this teachers, visitors, and other workers must be trained. Grants for research work should also be provided.

(5) The families containing feeble-minded children tend to be large.

(6) The remaining children in a family containing a feeble-minded child are more likely to be mentally defective than are children in other families, the Mongolian type of mental deficiency forming an exception to this rule.

(7) There is grave risk in the marriage of the blood relations of congenitally feeble-minded persons, even if they marry into a good stock.

(8) Surgical sterilization is neither desirable nor necessary if efficient lifelong care is enforced.

APPENDIX I

ON THE TRAINING AND MANAGEMENT OF FEEBLEMINDED CHILDREN

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Permanent Care of the Feeble-minded*

THESE notes are based upon the assumption that the children to be cared for are to be detained for the whole of their lives.

Not that the methods to be employed in this case should be different from those in use in good Special Day-Schools, but that the application of them will vary when we bear in mind that the object to be attained is, not merely to satisfy any examiner, however able, but to provide each child with some occupation which shall stand it in good stead when it leaves the school-room and has to take an active part in the little kingdom of which it should be a willing and a happy subject; and further to secure to each child that its bodily habits and condition shall be as good as is possible, and such as will make it healthy in itself and prevent it from being an object of disgust or distress to other people.

Occupation is the key-note of success in dealing with the mentally defective—occupation, incessant, pleasant to the child, easily within its capacity, and useful in itself. From the time the boy or girl rises in the morning until bedtime he or she should be occupied. The day should be one succession of mealtimes, work, and

play. It is well to remember that, for the feeble-minded, all work may be made as delightful as play, and that our object is not attained until our children look forward to their daily business with as much interest as to their games or their dinners.

All the children retained in residential institutions should be busy and happy until the time comes when they are disabled by illness from taking their share of the work of their home. Then they should still be happy and good. If they have been properly trained, it will make them easy to nurse and comfort when they are in the grasp of illness.

I have thought it well to put down at the beginning of these notes what are my views upon this subject.

It is very desirable that a colony should have accommodation for all grades of mental defect, both because classification will then be easier and more efficient and for the sake of economy. In any colony where houses for all grades exist it will certainly be found that frequent re-classification is necessary if injustice is not to be done to individual cases. Some improve and some deteriorate. It is an economical arrangement which will allow of the work of high-grade patients being utilised for the service of low-grade patients.

Admission.—When a child is admitted to a residential school with a view to its remaining for life in the colony of which that school should form the foundation, the first thing to be considered is its bodily condition. Weak-minded children coming from poor homes are commonly in a poor state of health. The doctor who passes the child as suitable for residence in the colony will satisfy himself as to any special weakness that requires attention, and will point out to the nurse or matron what he wishes to be immediately done for the child's physical benefit. There are, however, some troubles which it is for the matron rather than for the doctor to set right.

So soon as the child has been examined and passed, it should be given a warm bath. Great care should be taken to do the bathing very gently. It must be remembered that many such children have never before had a bath, and that it is, to them, an alarming thing to be put into water all over. If, however, they are allowed to feel the pleasant warmth of the water before they are completely immersed in it, and if their attention be distracted while they are being undressed, the difficulty can generally be got over. The water must, of course, be carefully tested to make sure that it is not hot enough to cause the least sensation of pain. A thermometer should hang in the bath-room for the purpose. The water should not exceed a temperature of 98° to 100° F.

It must be remembered that it is possible that the child may be insensitive to pain, and might be severely scalded without crying out. A gaily-dressed doll or other toy should be within sight of the child, and should be given to it when the washing and dressing are over. It must be borne in mind that such children can be bribed with toys long after the age at which normal children discard them. A Teddy Bear has sent to sleep many a little one who without it would have cried itself ill.

When the child has been thoroughly bathed and examined for any bodily defect that may have escaped notice during the preliminary examination, it should be warmly wrapped up and its hair should be cut quite short. Sometimes it may be better to cut the hair before bathing. It is frequently necessary to completely shave the head in order to get rid of vermin. If any lice are found on the body, it will be necessary to destroy or, if they are good, to stove the clothes in which the child was brought to the school. In any case, if lice have been found, the child must not be put back into its own clothes, however clean they may appear to

be. It often happens that the child has been re-dressed for its journey in clothes given by some charitable person, without having had its body washed.

A warm and comfortable meal should follow on the bathing, and it is to be hoped and, in some cases, expected, that the little one, worn out with all the experiences of the day, will go to sleep as soon as it is put to bed. It is likely that it has never slept in a bed by itself before, and this may prove a source of distress to it. Care should be taken to place it in the dormitory between children who will speak kindly to it should it feel frightened—unless, indeed, it should have been heard swearing or using foul language whilst being dressed. In that case it is best to place it between two of the dullest and least observant of the children in the room. Sometimes it is necessary to isolate a child for a time in a sick-room or hospital until it has forgotten its bad habits of speech.

On the day succeeding its admission the child will go to school, and its life at the Colony will have begun.

Food.—With few exceptions it is possible and desirable to insist upon all the children in a colony, young and old, eating the food which is provided for their table. It is very usual for parents to say: "My boy cannot eat this or that article of diet." No plea for differential treatment in this matter should ever be admitted without very good reason. (Such as that vegetables or porridge or jam cause diarrhoea.)

Tea, coffee, and alcoholic stimulants should be absolutely avoided except as medicines or, in the case of tea or coffee, as a very rare treat. It is a great pleasure to a child who is a little out of sorts to have a cup of tea, with bread and butter cut rather thinner than usual.

Meat should be given in small quantities, and what is given should be made into a stew or broth and poured over the vegetables. Some people prefer to give meat

minced; in any case it should be in a form which does not make it difficult to masticate.

A good and sufficient dietary is the following :—

Breakfast.—One morning porridge and milk, and the next bread and milk. Bread and butter to follow if the child is still hungry.

Dinner.—Two or three vegetables, including potatoes, with a stew or broth poured over them. Bread to eat with them. Pudding to follow, either milk pudding, jam or suet roll, or stewed fruit. Sometimes milk pudding and fruit may be given together.

Soup, fish, and baked beans,* instead of meat, may each be given once a week so as to secure variety.

Tea.—Bread with margarine, jam, or treacle. Lettuce when available; milk to drink. It is well to insist upon the bread and butter being eaten before the bread and jam is attacked.

It is necessary to note that it is not safe to allow all children to eat as much as they like, even of plain food. A case is on record of a boy who ate ten rounds of bread from a four pound loaf.

Boys going out to work should have a lunch of bread and cheese to carry with them. Girls working in the laundry should have a lunch of hot milk with a very little coffee and bread and butter. This exception is made because the girls see the women who work with them have this lunch, and think a great deal of being old enough to have it also. It is easy to make the coffee so weak that the children are drinking almost entirely milk. Should any child coming in from work not eat his or her dinner, it is well to stop the lunch for a day or two.

If the children have a pint and a half of new milk a day each, in addition to solid food, we may be sure that they are not underfed. In winter, cocoa may sometimes be substituted for milk.

* The beans are baked with bacon, after the Boston receipt.

Children should feel at liberty to ask for a piece of bread and butter at any time; but they must not be encouraged to eat between meals and then to play with their food at regular meal times.

With regard to the eating of sweet things such as toffee, chocolate, and the like, care should be taken that all sweets given to the children are wholesome. Relatives and friends often bring sweets for the children in whom they are interested; these should be taken possession of by the matron, except just enough to make the child feel that he has had his treat. He should be encouraged to share all he gets with others. This is a safeguard against his having too much and a lesson against greediness. All food should be nicely cooked and properly served. Table manners form an important part of the child's education. They should, from the very first, be taught to eat decently and not to be greedy. A good deal of trouble taken about this in the beginning will be well repaid.

Grace should be said quietly and slowly. The children should not begin to eat until they are told to do so. They must be taught to pass the plate to others before helping themselves and not to take the largest piece. It is a matter of some difficulty to teach them to hold their knives and forks properly and not to spill their food. All children should be given knives as well as forks so soon as they are able to use them.

The children should on no account be allowed to talk at table. It is sometimes urged that conversation during meals is more homelike than silence, but, where any large number of boys or girls are gathered together, conversation soon degenerates into chattering; voices are raised, and the children shout one against the other. Confusion results from the noise, and it becomes impossible for the attendants to supervise properly the manners and behaviour of their pupils. Moreover, children who are talking are likely to bolt their food

without mastication; this is always a fault of the feeble-minded, and is the cause of many of the small ailments from which they suffer; so far as possible it should be checked, and the boys and girls should understand that whilst they are at table their business is to eat, not too fast, but quietly and in orderly fashion.

At Waverley, Mass., U.S.A., the children's meals are served at tables accommodating ten each. The food is placed on the table in such an order that the attendant in charge can see at a glance whether it is all there. The attendants do not sit down, but move about the room helping and watching the children. It must be remembered that at Waverley all grades of mental defect are admitted. Even the very lowest are taught to eat fairly decently. Some of the high-grade boys and girls are told off to help the weakest of the low-grade cases, whose meals, it is unnecessary to say, are separately served in their own houses. The high-grade children, as in England, have table-cloths. The low-grade cases have their plates or bowls placed at one end of a long napkin, the other end of which is tied round their necks like a feeder. In this way any droppings from the spoon or mouth are easily collected and removed after the meal is over.

At Sandlebridge we find it necessary to give some of our children feeders. Our children are served at long tables, covered with cloths. The first course is actually served in the kitchens, and is carried into the dining-rooms by children whose special duty it is to wait at table. The second course (the pudding) is served at table.

After a little trouble the children learn that they must eat everything which is set before them, so that there is very little waste of food.

Care is taken that the older, or working, children have larger platefuls than the little ones, and that each child is suitably helped.

It is desirable that the Medical Officer should from time to time satisfy himself that the quantity and quality of the diet given is in accordance with that laid down by the Board of Control. Should it be unsuitable, however, the children soon show the fact by their diminished vitality and lower state of health.

Cod-liver oil is so much a food that it may be proper to speak of it in this connection. When winter sets in it is common to find that many of the children fail a little; they begin to have chilblains and look pale and out of sorts. Tempers begin to be tiresome. This may be taken as the signal for beginning to administer cod-liver oil. Almost all children like it, and as a rule they quickly show its good effects.

Dress.—It cannot be too constantly remembered that children who are weak in intellect are apt to be weak in body also. Especially they are apt to have poor circulations and to suffer from cold hands and feet.

It is hopeless to attempt to get any good work or good play from a child who is cold.

Clothing should, therefore, be ample. It should not be too heavy nor should it consist of too many garments. For the boys great comfort and security against chills is obtained by putting them all into grey flannel shirts. (*It must not be supposed that flannelette will answer the purpose.*)

A clever matron will so arrange that the new shirts are taken into use at the beginning of the winter. In the winter also a waistcoat may be worn, which can be left off in the summer. If this be done there will be no time of the year, in this climate, when flannel shirts will be too warm. Boys at school should wear a dark-blue jersey as their top garment on week-days, with knickerbockers and long stockings. Working boys wear a coat instead of a jersey.

Dress for boys may be given as this:—School children: Flannel shirt made long enough to come well

over the hips; long black woollen stockings; cloth knickers, *without pockets*, lined with grey calico; cloth waistcoats and dark-blue jerseys; strong shoes for the house and boots for out-door wear. Nightshirts should always be provided, with vests under them in cold weather. For Sundays cloth suits should be worn, with white collars and gay neckties. For very little boys it is worth while to provide sailor suits. They do not cost more and look better for small boys than the ordinary knicker suits.

For working boys corduroy suits should be provided if their work is of a rough nature; otherwise they may wear cord trousers or knickers (according to their height) and cloth waistcoats and coats, over grey flannel shirts. It is a tidy plan to have these big boys' shirts made with a turn-down collar. The trousers, which can no longer be so constantly washed as when the boys were little, must have linings of grey cotton, buttoned in; these linings need not come below the knees. Thick socks may gradually be given in place of the long stockings. Great attention must be paid to the fit and condition of boots. Clogs may be used for farm boys. Cloth caps are the best head-gear, except in very hot weather, when linen hats may be worn. Linen jackets, which can be frequently washed, are useful in hot weather.

Nice Sunday suits should always be given, and the boys should be encouraged by every possible means to care for their personal appearance.

It is especially necessary, in the case of the little boys to take care that no part of the clothing presses unduly on the person. Bad habits may be set up merely by the fact that the child is wearing a pair of knickers which are too tight for him.

Warm great coats or capes should be provided for use in wet weather.

Girls should have warm woollen vests next to the skin; the garment next to that should be a pair of thick cotton

combinations. Over this should come a good flannel petticoat with a body to it. Then a stuff petticoat. In this climate nothing is better for ordinary wear than blue serge frocks. These should be prettily made and protected by cotton pinafores or aprons, according to the age of the girl. All girls will require three frocks—one for school or afternoon, one for work, and one for best. No stays are necessary or desirable except in the case of some special deformity which is to be helped or corrected by special corsets. Vests must be worn under nightgowns in the winter. Warm capes should be provided for cold weather. Jackets do very well for some children, but where the child has a difficulty about dressing it is a saving of time and trouble to use a garment for outdoor wear that has no sleeves. Grown-up working girls require cotton working dresses. The greatest difficulty about the girls' dress, from the point of view of neatness, is as to the finish of the frocks at the neck. A good plan for working dresses is to have them made with a little turn-down collar. In any institution for girls many gifts of clothing will be received; these may be utilised with advantage; there is no object in having all dressed alike; care, however, must be taken that uniformity of warmth is secured. Long woollen stockings should be provided, and good, well-shaped boots and slippers, with clogs for laundry girls. Hats are a difficulty when heads are peculiar in shape and size. Gay cloth caps (red and blue) are the most satisfactory on the whole. If there be any very hot weather, linen hats may be used.

All feeble-minded children, boys and girls, should be encouraged to pay much attention to their persons, and vanity should be cultivated as a saving grace.

Dormitories.—These should be warm and airy and well lit. They should be very easy to keep clean, and therefore should be so constructed and of such materials that any dirt is likely to be visible. If possible, a tiled

dado, in a bright colour, is good; it is both sanitary and decorative. A bright linoleum on the floor, regularly treated with ronuk or some equivalent, is desirable. Polishing this is one of the earliest forms of work that the children can be put to. A line of little boys or girls can quickly polish a large floor-space and will enjoy doing it.

Whilst the children are young, it is best to have nothing in the dormitory but the beds and the necessary chamber utensils. All the children should be washed in a lavatory. *Beds must be warm and comfortable: it must always be remembered that nothing so conduces to the wetting of beds as cold.* The best thing for the children to lie upon is very thick felt over a wire mattress. (The felt sometimes sold for this purpose having become very expensive, an equally good effect may be obtained by putting two thicknesses of ordinary felt together, secured by eyelets at the corners through which strings are passed to tie the felt to the bedstead.) Under the felt should be strong brown paper, both to preserve it and for extra warmth. Over it should be a thick brown blanket; then come the sheets (brown Bolton sheeting is the best, it is soft and warm). Then should come as many blankets as are necessary for warmth and then the quilt. The pillow should be low. Bolsters are not necessary. In the "sick-room" mattresses are desirable.

Windows should be open all night all the year round. If open fires are used these should be lit in time to warm the dormitory thoroughly before the children go to bed and then allowed to go out.

There should be a bright picture or two in the dormitory and a few toys on the mantel-piece.

Dormitory discipline is very important. The children should begin on admission to learn to fold their clothes neatly and lay them in a pile at the foot of their beds. It often takes a long time to teach this, but when it

has been successfully accomplished the child has learned several important lessons; how to use its hands and eyes, how to copy what it is shown, and, not least, it has achieved the beginnings of neatness.

The children must also learn to make their own beds. Every bed must be quite stripped every day. Each child while small should make its own bed; it would be a pity if any one missed so practical a lesson. When they are older it is a saving of time and trouble to allot the dormitory work to special children.

They must learn that they are never to leave their beds without necessity. Also they must be taught that they must leave them when it is necessary. Children often wet their beds from sheer laziness or because they are afraid to get out of bed in the dark. If a child wets its bed, it must be regularly got up the last thing at night before the attendant finally leaves him. Children soon learn to get out of bed, almost without waking, so soon as the light is turned on. No pains should be spared to cure the bad habit of wetting the bed. It is undoubtedly impossible to get it under in the case of many imbeciles, but almost all children who are able to learn to wash and dress themselves can be made to be clean in their habits. Judicious discipline will often work wonders, just as it will in the training of an infant; but it must be remembered that the punishment, to be effective, must follow close enough upon the offence to be connected with it in the child's mind. It is a good thing to give children who wet their beds their last drink somewhat earlier in the day than the others. A sharp run just before retiring, or other exercise such as skipping, which will induce a light perspiration, is helpful. If discipline, encouragement, and other simple means fail, the doctor's assistance should be asked. I have known one boy, suffering from kidney trouble, who was much benefited in this respect by wearing a flannel bandage round his body. A light should be

always kept burning at night for young children and those who are liable to be taken ill.

Should a child constantly and incurably pass fæces under it in bed it will probably turn out to be an imbecile, and should be in an institution with others of the same mental grade, or, better still, in a special house for such children where special supervision is given, rather than in a school for those who are technically named feeble-minded.

Talking or playing in bed must be rigidly discouraged; the children should learn that they go to bed in order to go to sleep. Nothing should be taken to bed except, in the case of little ones, a toy or doll to hug.

When the attendant goes the round at night he should observe whether the children are lying with their heads properly uncovered; the children should not be allowed to burrow to the foot of the bed and bury themselves in the bed-clothes.

Bath-rooms and Lavatories.—Bath-rooms should be as ample in space and accommodation as circumstances will permit. It is often a matter of some difficulty to get all the children in a large home bathed often enough, especially when some of them have to be bathed much more frequently than others. At Waverley, Mass., only shower-baths are used. It is a plan that has undoubted advantages. Care must be taken from the beginning to make all the children observe decency in their bathing. One of the most marked signs of a weak intellect is a willingness to expose the body improperly. Especially with the older girls it is impossible to take too much trouble about decency and privacy in the care of their persons. Where there are two or more baths in a room a screen should always be used so soon as the girls approach womanhood. Whilst they are still quite small they can be taught never to entirely expose their persons. They should learn to put on their night-gowns before they altogether remove their day clothing, and

to wrap themselves in their towels directly they leave their baths.

All children should be bathed often enough to secure cleanliness. It will be found an advantage to have in the bath-room small fixed earthenware tubs in which the feet and legs may be washed without giving a complete bath. Especially boys who are out at work will get their feet very dirty.

With the young children it is a good plan, on the days when they are not having a bath, to give them their strip wash in the lavatory before tea. They can then go to bed immediately after tea and prayers are over, and the attentions of the persons looking after them can be more easily devoted to getting them properly to bed than when they have to look after their washing and also after the bathing of those whose bath-night it is. Teeth should be cleaned at night. How to manage tooth-cleaning and to keep tooth-brushes clean and in nice order is always a problem. At Waverley the brushes are kept in a frame pierced with a hole for each brush. The attendant stands with the frame, and each boy or girl comes for his or her brush and after using it returns it to the attendant.

At Sandlebridge we use a row of clips or a pierced frame above the basins in which the children wash. It is significant that the boys wear out only half as many brushes as the girls.

Heads are an endless difficulty; however carefully they are cleansed and watched there is always the difficulty of possible re-infection from a visiting parent or friend. It is, of course, nice to be able to allow the girls to wear their hair long; but it is a question whether the advantage gained in appearance is not outweighed by the endless trouble given if infection creeps in. Also, leaving that aside, there are very few girls who can learn to take care of their own hair; and it is a great addition to the work of the staff to keep many

heads of long hair in neat and pretty order. A very pleasing result may be obtained by giving the girls who have their hair short bright-coloured bows of ribbon on elastic to wear.

If the children's heads are perfectly clean it will not be necessary to have in use a comb and brush for each one. There are advantages in having only so many in use at once as are wanted for the nice keeping of the children's hair. Both combs and brushes are frequently broken, and it is by no means easy to keep up a constant supply in a large home if each child has one. When only a limited number are used, they can be replaced as soon as they are spoiled.

Needless to say that a sore head, skin trouble, or eye trouble necessitates a separate brush and comb kept where it is inaccessible to the other children.

The same remarks apply to towels. Probably there are as many ways of managing these details of the toilet as there are institutions. One thing is certain, if the child be completely cleansed immediately after admission, all subsequent arrangements of this sort are much easier than they otherwise would be.

Whether the child has its own towel or no, the towels should never be allowed to remain very dirty. It is bad morally as well as physically for a child to use anything which is obviously unclean.

The bath-rooms and lavatories should be specklessly clean; the keeping of them so provides work for low-grade cases. Boys and girls of very small capacity can learn to polish taps and to wash tiles.

There should be a good supply of hot and cold water. If the taps are not of the kind that can be only turned on with a key by the attendant, great care should be taken that the children do not have the chance to scald themselves with the hot water. Here, as everywhere in the institution, it is well to be on the look-out for an accident.

Offices.—Perhaps there is nothing in the care of the feeble-minded which calls for more attention than the use of the offices. Where, as in America, they are in the same room as the lavatories and attached to the dormitories, it is comparatively easy to see that the children use them properly. There is, however, so much to be said in favour of having them entirely removed from the dwelling-rooms of the house and of having them detached and separate, that this ease may be considered as rather dearly bought.

With regard to the little children, it is not a bad plan to utilise the services of an older child. It must be made quite sure that this child is to be trusted. The offices must be sufficient in number and readily accessible. Two children should never be allowed to enter at once, except in the case in which an older child is acting as nurse.

So small a detail as the proper use of paper, without waste or untidiness, when achieved, marks a distinct advance in the progress of the child towards civilisation. Paper should always be hanging in each office, neatly cut and ready for use. The cutting of this paper makes an occupation for a low-grade case. Big boys and small ones should not use the same offices. If a child appears to be poorly the first thing to be done is to make sure that it is not suffering from constipation. In order to do this it will probably have to be isolated in the sick-room or hospital for a few days so that it may be under careful observation. Decency in the use of the offices, as in bathing, should be carefully insisted on. If a child is careless and soils its clothes in using the office or from neglecting to use it, it is a good plan, supposing that he has the physical strength for the work, to make him wash out the soiled garments himself. It is often pure laziness that makes a child dirty in this way; sometimes, when they come from other institutions where perhaps the necessity of training has not been

realised, they are wilfully dirty. One boy said to the matron of his home at Sandlebridge: "I always have been cleaned up after, and you will have to clean up after me too." He had to alter his view of the subject.

Children can early learn to clean out their own offices; they must be taught that it is as important to keep these in nice order as it is to keep their day-rooms and even "Matron's sitting-room" neat.

Dining and Day-rooms.—Whilst the children are small it is important to have separate dining and day-rooms for them, as they will have to spend bad weather indoors and must have somewhere to play. When they are grown-up and going out to work probably one large room will suffice. Both day and dining-rooms must be warm and light. All lights must be well out of reach of the children and open fire-places must be guarded. It is desirable, from the point of view of cheerfulness and ventilation, to have open fire-places, but care must be taken that the children do not hang round them too much.

Neither room should be over-furnished. There should be nothing in the dining-room but tables, chairs, and pictures on the walls.

In the day-room there should be a good solid table, some chairs, and a cupboard for toys. There should also be a piano and a couch (very simple, a camp-bed, with a squab covered in American cloth answers every purpose) for an ailing child to lie down upon. Pictures on the wall and a few of the best toys on the mantel-piece complete all that is necessary for this room. It is, however, very good for boys and girls if there is a rocking-horse provided.

If the room should be for quite little children, the large table may be dispensed with; little children like to play on the floor. There should, however, be several very small tables and little bent-wood arm-chairs which can be drawn close to the fire for an invalid or delicate child.

The floor should be covered with bright and cheerful linoleum and the walls should be light in colour. Too much stress cannot be laid upon the desirability of having all the rooms which are to be inhabited by feeble-minded children light, pretty, and warm. It is a great mistake to suppose that it is more economical to have them ugly than it is to have them pretty.

The children should early be taught, so far as possible, to put away their own toys, and to realise that they must respect the property of each other. They must also be taught that they must share all the gifts that are brought to them by relatives and friends. Gifts of food must not be kept in the day-room, but must be immediately taken possession of by the matron and given out discreetly.

Wardrobes.—These should be ample in space and accommodation. They should be well ventilated, and it must be remarked that it is not a good thing to shut away the clothes, especially the cloth clothes, of the children. They are best hanging from an iron clothes-rail in the middle of the room. Wherever possible, a great deal of labour is saved by having the children's under-clothes put away in separate pigeon-holes, labelled with the owner's name. This is especially desirable in the case of the bigger boys and girls, who can be made to put away their own things and to keep their little cupboard tidy. When the girls reach womanhood, it will be found a good plan to give them certain privileges in this direction; perhaps a share of a little chest of drawers which may stand between two beds. Boots should never be shut up. They are apt to smell very unpleasantly if they are not exposed to the air. The best plan is to have a shelf or row of shelves made, not solid, but of slats with spaces between them. It is exceedingly difficult to keep the children tidy as regards their feet. Buttons are always being wrenched off; laces are constantly broken and mis-applied. On the

whole, boots that lace are probably the best, and the attendant in charge will have to keep a supply of laces on hand and try to prevent their being converted into whip-lashes, etc.

In voluntary institutions there is rarely any very large stock of clothes on hand; the sooner, however, that a reserve stock can be arranged for, the better. It is economical to insist on order and neatness in the wardrobes. Time is lost when the attendant has to turn over a dozen piles of clothing before she can find what she needs. A Stock list should be taken regularly.

Kitchen, Store-rooms, etc.—It is not my purpose to say much about these. They will vary in every case according to the size of the institution and the means at the disposal of the managers. It is worth while to remark, however, that here is the greatest opportunity for waste or for economy in the whole institution. A little waste every day makes a very great deal in the course of a year, and if the hearty co-operation of the servants who serve in the kitchen can be obtained, the successful working of the institution from a money point of view will be greatly helped. It is thought by some people that a central kitchen serving all the houses of a colony is the best arrangement. I believe, on the contrary, that a kitchen in each house is more economical and convenient, as it is certainly more home-like and better for the boys and girls.

In the kitchen, as elsewhere, the services of the children may be early utilised. They can wash tiles, clean taps, and wash up the utensils they have themselves used at meals. They can lay their tables and carry the food to the tables when laid. Strong working aprons must be provided for boys and girls working in the kitchen, and care must be taken that they do not wet themselves too much in washing floors, etc. It is very difficult to get them to remember that they must use a kneeler, but it can be done; pieces of carpet tied

with string round the knees are good in the case of boys. Great care must also be taken to prevent them from having unguarded access to the fire. They are rarely timid enough or cautious enough to be trusted not to hurt themselves.

In any large institution the peeling of the potatoes is a serious business, and is one that can be well done by the children themselves. Great waste, however, can be avoided by the use of a machine for this work. At Sandlebridge the use of such a machine has resulted in a considerable saving of potatoes every week. Moreover, it has provided a special kind of work for two boys who appeared to be useless for anything else. W. G. G. has a partially paralysed arm, of which he has hitherto made very little use. He turns the potato peeler, and has to bear all his weight on both arms as he does it. He is made to put the bad hand as well as the good one on the handle, with the result that it is growing visibly in size and is much stronger. His partner, L. P., was useless for any kind of work until this was found for him. He is improving in physique with the definite daily exercise. Both work under the direction of a high-grade boy, W. B., who attends to putting the water and the potatoes into the machine and afterwards carries them out to the different houses in a little hand-cart. These boys got so wet over their work that they are now covered completely with over-alls made of coarse strong material.

Utensils.—Cups, plates, and basins should be of strong earthenware. Enamel is more durable but soon gets chipped and unsightly. Once chipped it is difficult to keep it quite clean. It seems likely also that chips of the enamel, getting into the children's food and being swallowed by them, may be the cause of serious illness. Moreover, if a child drops a plate or cup and does not see it break, as in the case of enamel, he will be less distressed by the result of his carelessness and more

likely to repeat it than if he sees the object broken to pieces.

The utensils, however, in use in the dormitory may be of enamel, if due care be taken to exchange them for new ones so soon as they are damaged in a manner that makes them insanitary.

It is well that the children should learn to take care of the utensils they use, but the process of learning will always be a costly one. The best punishment for carelessness resulting in a breakage is to make the child hand over the next penny he receives, explaining to him that someone has to pay for the new cup or plate.

The School-room.—It is most desirable that the school-house should be built quite apart from all the residential buildings of the colony. It is a great factor in the health of the children that they should be obliged to leave the house in which they live twice every day. It is not only that the fresh air lessens their liability to consumption, but also that it strengthens them in every way; especially they are less likely to take cold when they are constantly out of doors in all weather. Common colds are a great nuisance in an institution, and anything that lessens their frequency is a boon. It is also much better for the teachers to have the school-room quite apart from the living-rooms.

Should the school be under the Board of Education, it will, of course, have to conform in space and general accommodation with the regulations laid down by that Board.

With regard to the decoration of the rooms, they cannot be too bright and pretty. Plenty of light, plenty of warmth, and plenty of floor-space are necessary. Care must be taken that the seats provided are comfortable, and that a proportion of them can be readily moved. A number of small chairs for the very little ones or those who are deformed should be available. There should also be a couch or mattress, such as is

provided in the houses, so that a child who is taken ill may lie down at once. If there are children in the school, as is too likely, who suffer from epilepsy, it is not enough after a fit that they should be able to lie down when they go home. They should lie down immediately and be allowed to sleep the effect of the fit off.

A good manual room is a great addition to the building. This room may be used also as a sense-room. Perhaps it may be well to explain what is meant by a sense-room. Probably few institutions, at least few voluntary institutions, could afford to have a fine room specially set aside for this purpose, but if that at Waverley be described people can adopt the method if they think good.

Dr. Fernald has furnished this room with large tables which stand out from the wall into the centre of the room. There is one for each of the five senses—sight, smell, hearing, taste, and touch. Against the walls are labelled cupboards for the necessary articles with which to test and train the child's senses. Thus, there are in the sight-cupboard a variety of objects, similar to the usual kindergarten bricks and models, but made at least three times larger than these. The brick is six inches in length by one inch square; the cones are six inches high; all are made on this scale. There is a great variety of models,* and all are gaudily coloured in the primary colours and are made in duplicate. (Dr. Fernald has a box of bright-coloured building bricks in every house in his colony. The children themselves make these bricks.) The child stands at the table, on which the different models are set out; he is given, say, a red brick; it is large enough for him to grasp it easily and bright enough for him to see it clearly. He is told to move round the table until he finds another model exactly the same in shape and colour. If he be given a red star, he must find another red star and

* See photographs of models in use at Sandlebridge (p. 228).

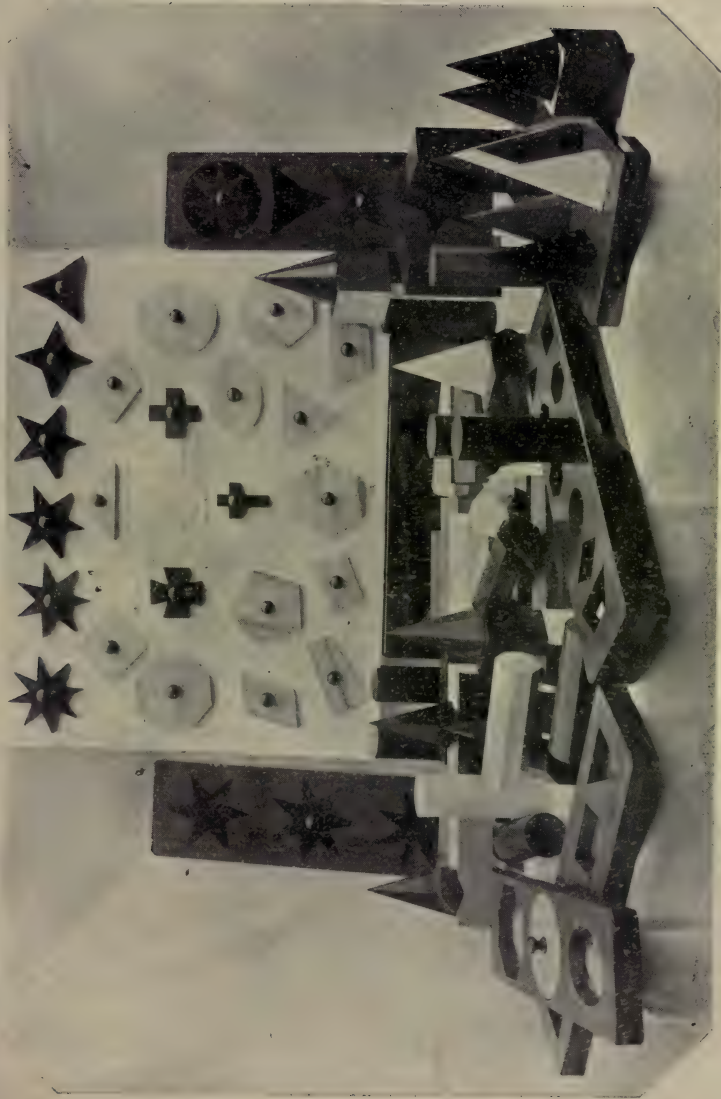


PLATE XII. Models used in training the senses of Sight, Colour, Form, Patterns and Building. (Models made by John James and William Teare for the Sandlebridge Schools).



bring it to the teacher and fit it into the star-shaped hole in the piece of wood from which it was cut.

There seems to be a great advantage in having all these models made of a size that readily attracts the child's attention and makes them easy to grasp.

The cupboard for smell contains a variety of substances such as pepper, mustard, onions, lavender, put into bottles with wide necks, which can be easily offered to the child's nostrils. He is blindfolded and has to guess what is offered to him. The taste cupboard has a number of bottles with different strong-tasting substances in them. The bottles must be wide enough to allow of a spoon being inserted. A basin with water and some harmless disinfectant is at hand to wash the spoon after each use of it. The teacher gives the child a tiny taste, say, of ginger or of flour or of salt or any other substance of which it may be supposed to know the name; always she finishes up with a little taste of sugar. And always, after each use of the spoon, she dips it in the basin and wipes it on a clean cloth. The child is, as before, blindfolded.

The hearing cupboard is furnished with a variety of instruments for making different noises. Bells of various sizes, cymbals, rattles, whistles, etc. The child guesses, blindfold, which instrument is being used.

The touch cupboard has a big bag, full of all manner of objects; balls rough and smooth, pot eggs, little dolls and toy animals, bricks, pieces of cloth, woollen, cotton, and silk. The child dips into the bag and guesses without looking what object he has laid hold of.

A clever teacher will make this lesson as delightful as a game to the children, and will constantly vary the objects used.

Around the room are the elementary forms of kindergarten work. They are, more or less, in use in all infant schools, and need not be specially described. One item which I have not seen elsewhere was the

strands of red and yellow and blue cloth, hanging from hooks on the wall, ready for plaiting by the children as they stood in front of them. They have to reach up a very little to get at them, and the attitude is a good one for the feeble-minded, whose inclination is too often to look down and hang the head.

It would be superfluous to enter into all the details of the routine of a school for the feeble-minded.* They are very well known to every one who has had to do with such a school. Generally it is safe to say that the methods employed should be those of the kindergarten, but that these should be so adapted as to teach the child not only co-ordination of hand and eye, and as far as possible to develop its reasoning powers, but to teach it at the same time to perform some useful work. A child has learned a great deal when it has learned to lace its own boots. This is an excellent lesson for hand and eye; but it is also something accomplished towards the after-care of itself. A child has had a lesson in training of hand and eye when he has learned to weave paper into patterns; but he has not thereby achieved anything of lasting value. He will still have to learn to lace his boots. There is much training in the knitting of stockings, training in counting, in the use of the fingers and in memory and observation. It is a far better occupation for the child than the mere knitting up of a quantity of wool, which is afterwards unravelled and given to another child to knit again. Very few feeble-minded children are incapable of perceiving that they have been employed on a useless piece of work. It is most desirable that everything the child is taught by way of occupation should serve some useful purpose. Knitting, sewing, rug-making, Macramé work all are admirable exercises, and

* See circular issued by Board of Control:—"Suggestions for School Organisation, Classification in Institutions for the Mentally Defective."

are at the same time an asset in the child's after life. No skilful teacher will follow this principle to excess. There are exercises which must be used merely for their present value, or for the pleasure which they give to the child, such as arranging coloured pegs in holes or putting together a dissected puzzle. In the main, however, it is well to remember that the defective child can acquire only a limited amount of knowledge, and that with much pains and patient labour on the part of the teacher. This painstaking labour may as well be bestowed on what will make for future efficiency, seeing how short is the time during which we can hope to teach the child anything.

Some children in every school will be able to learn to read and write. Very few will care so much for reading that they will take pleasure in it after they have left the school-room. Every boy and girl ought to have the chance. One little girl who is excessively troublesome can always be kept quite good and happy by giving her something to read which she has not read before. As to writing, I confess to being sceptical as to its value. In at least one great institution, the knowledge of how to write has led to great difficulties in managing the high-grade cases, the men and women communicating with each other by means of notes. Simple arithmetic has a practical value which makes it a very useful subject to be taught. It is interesting to note that the children themselves, by their games, teach each other a good deal of simple reckoning: they count the number of times they clear the skipping-rope, the number of times they catch the ball, they reckon whose turn comes next.

In the same way they deal with one of the greatest problems that the teacher of defective children has to face, the problem of defective speech. Children who are constantly together *will* communicate with each other, and many a child who comes to Sandlebridge with

scarcely any vocabulary learns from his little school-mates far more than he can be taught in the school-room. Nevertheless, this is one of the most significant defects with which the teacher has to deal. It is worth while to take much trouble to improve a child's speech and to give him more words. If pains be taken with the enunciation in the singing lesson, this is a great help towards the improvement of speech. At prayers also the children should be taught to try to say the words they are using distinctly and slowly. Here again, as in all concerted action, they learn from each other. It has been contended that children of weak intellect should be treated singly, a teacher devoting to each a great deal of individual attention. This is a great mistake; and it is here that the children of the poor often have an advantage over the children of the rich. They have all the gain there is in companionship. All children delight in concerted action, and especially does the defective child find pleasure and profit in it. For him it is particularly necessary; normal children have all some points in common, however much they may, on the whole, differ from each other; the defective child is, by reason of his defect, more isolated; there are no two defective children who are alike in tastes, abilities, and habits. If once the boy or girl can be induced to take part in organised games, drill, marching or singing, the spirit of rivalry, the desire to do a little better than his neighbours, may be aroused; then there is hope of progress.

Lessons of any kind, whether for head or hand, must not be made too long. Change is wholesome, and a wise teacher will see that her little scholars are not kept too long in one position or at one kind of work. In short, all that is of use in a well managed infant school is of use in a school for the feeble-minded.

It will not unfrequently be found that the brighter children, those who are capable of learning to some

extent, have a great dislike of it. This is probably because these children have a greater degree of physical strength than the worse cases. They are often robust, rough children with much animal vivacity, which it is very difficult to control. It is well to take the earliest opportunity of releasing such a child from school and sending him to more congenial work. I say the earliest possible, because the children must be occupied and care must be taken not to allow a young boy to do too much physical work. School is a great safeguard against over-work. These children to whom lessons are irksome and who therefore give endless trouble to their mistress, will often become quite manageable when put to work under a man out of doors. No doubt the fact that the man's greater strength enables him to control the naughty boy without a struggle has something to do with the matter. Especially is this the case with children of violent temper. C. A., aged twelve, was a short, thick-set, sturdy boy, very strong. He was quite able to read and write, but detested doing his school work. He was subject to storms of uncontrollable passion during which he was blind and deaf to all remonstrance. After one such attack, during which he had thrown his dinner at the wall, he was sent to work as a means of checking the terrible sobbing with which his attacks always ended. In five minutes he was quite happy, unloading coal with one of the older boys. He was then given for half of each day to the horse-man, the understanding being that if he were naughty in school he could not go to work. The plan answered admirably, and for over a year now he has not gone to school at all; he is about fourteen years of age; still very small, but very strong. He can harness the horses, who put their heads down to him since he cannot reach up to them. He is now milking five cows morning and night, is a most useful farm-boy, and as happy as the day is long.

The other child was endlessly troublesome and dis-

obedient; fretful and teasing and mischievous to the last degree. He was always in disgrace. He also could read and write. At last, though he was full young for it, we tried the same experiment with him as with the other boy. We sent him to the gardens. He has wonderfully improved, is happy and generally good, and seems much better in health; he is round and rosy-faced with a nice bright grin instead of the down-cast scowl he used to wear. It would be well if his little sister could be treated in the same way.

It is, of course, necessary that one should be able to trust the men to whom one hands over such children; they should be good-tempered and patient and willing to teach; careful also that the children do not get over-fatigued or wet and cold.

The great advantage of a residential school over a day school (so long as school life goes on) is that everybody concerned with the children teaches them. Matrons, house servants, gardeners, farm-men—all must be selected with a view to their being able and willing to assist in the training of the children. It is a work demanding endless patience and sympathy. But it is one that has a growing fascination for those who embark upon it whole-heartedly and unselfishly.

Work.—There cannot, with propriety, be fixed any age at which the children of a colony should quit the school-room and go to work. As has been seen, there are cases in which it is desirable to allow the child to leave the daily routine of lessons exceptionally early. If school work is an excellent means of providing training and employment for children without undue physical fatigue, work outside the school-room, physical labour, is an equally good means of occupying and training those who are troublesome and robust. In every case, the individual character and needs of the child must be considered. When it has been decided that a boy or girl shall go to work, it is well to secure in the first

place that the mere fact of this promotion shall be regarded as a favour. This is not difficult to manage. When the preliminaries have been arranged the question should be raised in the presence of the child. It should be quietly discussed whether the child is good enough to be allowed to work; whether he or she can be trusted not to give too much trouble. Then the matter can be held over for a little while, expressly for the purpose, from the child's point of view, of considering these weighty matters. During this period those in authority will be besieged by requests to be allowed to go out and work or, if it be a girl that is under consideration, to be allowed to go to the laundry. When the time finally comes for the child to be released from lessons, a pleasant fuss should be made about the matter. There will be the necessity, probably, for making some suitable change in the clothing worn; of getting up a little earlier and going to bed a little later; of being big instead of little. All these things should be conceded as a great favour. *Almost any work that is within the physical and mental capacity of the children can be got from them by allowing them to do it as a favour instead of imposing it as a duty.* The question of duty must not be neglected, but it will have to come by degrees. The first thing to do is to make them see the truth that it is a privilege to work.

Then comes the question of making sure that the child shall not be disheartened at the beginning by being given a task that is beyond his or her strength. For instance, if a boy be about to learn to dig, it is well at first to give him a spade that is only three-quarters of the usual size. He will be able to handle this with ease. From the outset care must be taken that he does handle it to some purpose. He must not be allowed to play with it; the spit of earth must be properly dug and completely turned over and the

digging, however slowly, must be done. It must be remembered that an ounce of encouragement to these children is worth a pound of blame. I have in my mind a big, lazy, good-natured girl, who for some time after leaving the school-room seemed hopeless as a worker. One day it was noticed that she was turning the handle of the mangle. It was purely mechanical, but some one remarked with much expression of surprise and pleasure :—"How beautifully N. does turn the mangle. I should not wonder if she could fold pillow-cases just as well." Of course N. wanted to try, and was delighted to find that she met with a measure of success; after a few weeks of patient teaching N. could fold clothes. Now the once helpless, feeble fingers can do much more than that; she can iron clothes. Girls, even more than boys, need to be watched that they do no more than is good for them. It is to be hoped that, wherever funds admit of it, variety of occupation may be provided for all girls. Weaving, mat-making, lace-making, all are possible and all are profitable and pleasant for the children. This greater delicacy of the growing-up girls is no doubt one reason why they are more difficult to manage than boys. If a boy is troublesome it is in most cases safe to let him work his naughtiness off. With the big girls, however, the demonstrations of hysterical temper that often occur, between the ages of thirteen and eighteen have to be considered as indications for extra care. Indeed they are often accompanied by definite illness. For instance, one girl for some years had a distinct rise of temperature once a month; this was always observable when she was particularly naughty and bad-tempered.

The physical strength of the feeble-minded is generally as defective as is their mental strength, though, of course, there are notable exceptions to this rule. The lack of co-ordination between hand and eye makes the using of their muscles a greater fatigue to them than

it is to ordinary children. Their clumsiness increases their labour. If due care be taken, when they begin to work, that they are not over-fatigued, a marked improvement in health and strength generally shows itself after the first six months of bodily work. Their muscles develop and they gain more skill in the use of them. Their knowledge increases and their horizon enlarges. They learn to know something of the properties of matter; they begin to understand that earth is soft and stones are hard and heavy in proportion to their size. Many of them have previously been in the position of the little child who was seen one day patiently trying to fit the front door key into the lock of his mother's bureau. Now they learn from practical experience about the relative sizes of things; about angles, squares, and other geometrical figures. Not that they can call them by their names, nor is it of importance that they should do so; the point is that they should no longer make errors in their daily work from the lack of perception of the shapes of things. Rough and smooth begin to have meanings for them; the boy knows that the mowing machine will make the lawn smooth, the girl that the hot iron will do the same good office for her pinafore. Cause and consequence take part in their daily routine of thought: the cows must be fed that they may give us milk, the chickens that they may lay eggs. Potatoes must be peeled because the peel is nasty and bad to eat. Weeds must be taken up because they will kill the flowers.

The men and women who have charge of the children during their working hours should be carefully chosen because of their power of understanding the condition of the boys and girls, and their ability and willingness to make all work a continuation of education. It goes without saying that self-control and patience are absolutely essential for these out-of-door teachers.

For some of the children it will be found necessary

to give them change of occupation from time to time. For most the best plan will be to get them into a groove and keep them there. If a garden boy wants to leave his work and go to the farm, if a laundry girl wishes to forsake the laundry and take to sewing, care should be taken to ascertain whether there is any more in the wish than the restless desire for change. Time is lost in getting the children into the habits of one class of work and then allowing them to throw it over and begin upon another job that entails fresh teaching and learning. Sometimes, however, especially if the child has got into a fractious cross fashion with those who are over him or working with him, it will be well to give the change. For some of the low-grade cases no change is ever desirable nor is it wished for. One must be very glad if a boy or girl can learn to achieve successfully some small mechanical piece of work, such as washing flower pots or polishing a floor. At least that piece of work need not be done by a child of greater intellect.

In considering the work of the feeble-minded two matters have to be kept constantly in view; the first is the welfare of the boy or girl, the second the money result that may be obtained from their labour.

It is essential that the weak in mind should be employed in order that they may be as healthy as their bodily limitations will permit; it is essential also that their employment shall be so regulated and thought out as to make them happy in it.

It is also essential that the work they do shall not be wasted effort, but shall either bring in or save money. In the case of the very best of the feeble-minded, it is probable that the difference between their earnings and those of the normal boy or girl of the same age will be represented by the cost of their supervision. Some boys and girls will do surprisingly good work when looked after; others will be able to achieve very little. The object to be aimed at is that no boy or girl or man

or woman who is able-bodied shall be allowed to do nothing. Idleness means degradation of the lowest kind for the feeble in intellect. There is no other way but regular work, which leaves the children so tired at night that they go to sleep when they go to bed, to keep them from falling into habits which further lower the already low intelligence and physical strength.

Games.—The more the children play, the better. Organised games are good. In England football and in America baseball are great stand-byes. Great value, however, is to be attached to games that the children devise for themselves. They should be given chances to play freely and follow out their own plans. Where possible a piece of ground in which they can grub round without doing themselves or other people any harm is a great advantage. It is pleasant to see little gardens growing up in corners of the playground. It may be sad that they should be the sort of gardens which belong to a much younger age normally, but it is so good that they are there at all. Skipping, ball games, hoops, kite-flying all are good. Horses, with reins made from any ends of strings that the children can find, are excellent. Such reins are far better than the pretty ready-made ones that are given so kindly at Xmas-tide. It is better for the child to be prompted by his desire to play horses to look for or beg string and then to knot it together himself, than to have all his wants supplied. Often it is a pleasure to the children to carry out in play-time what they have learned in school. Some girls at Sandlebridge picked up every stray bit of wool that they could find or beg and made these into a pair of bedroom slippers for their matron, without help from anyone. They saved their pennies and bought the soles and stitched them in. The result was curious to look at, but the slippers were properly made in every particular.

I have found children knitting with bits of ravellings

and smoothed pieces of twig which they had broken from the hedge. In their games especially the delight of the feeble-minded child in accomplishing something is apparent. It ought to be encouraged to the utmost degree.

Like other children, these boys and girls enjoy make-believe; they like to play at shop or at school. One very unsocial child would, so soon as school was over, take a number of stones, range them in a line, and proceed to give them lessons; this one she would praise, the other blame, mimicking the routine of the class she had just left. She much preferred this to playing with the other children. This unsocial disposition is not to be encouraged. The children must learn to take their share of rough and smooth in the little community of which they form a part. They educate each other in their play quite as much as their teachers can educate them. Needless to say, they must not be left to play unsupervised. Someone must be at hand to interfere if passions, always too readily roused, become uncontrollable. For games in the house building with bricks, dolls, dissected picture puzzles, skipping and dancing are all good. Soldiers are an endless delight to boys. Toys are broken very frequently; they must not for that reason be put out of the children's way. It is better for them to break their toys than for them not to play. These indoor games afford the opportunity of enforcing lessons in tidiness and order. The children should learn to put away the things with which they have been amusing themselves. Care, however, must be taken that too much is not sacrificed to tidiness. It is not possible that a large room, in which a number of children have for some time been playing happily, should look tidy.

Hospital or Sick and Isolation Rooms.—It is essential that in every colony there should be the means of completely isolating a case, if the doctor desires to do so.

All doubtful cases of illness should be isolated pending his decision. A hospital is, of course, much the best, but if this cannot be had, rooms should be arranged in which the children can be nursed if they are ill. One room of four beds to every forty children will probably suffice. There should be no furniture in these rooms except the beds. A nurse can easily carry in a little table and a chair if she needs them. When the child gets up, one of the small tables and chairs provided for the living rooms can be taken in for it. The room should face South, and should be easy to warm and to ventilate. There should be an open fire in it, well guarded. The walls should be light in colour and easy to clean. A bright linoleum should cover the floor. The ordinary appliances for the use of sick people should be at hand; it is useful to have, for those children who are not very ill, a white china pail to save them from going to the office to relieve themselves. This shews when it is soiled, and can be easily cleansed. It will be found that, as a rule, feeble-minded children are much more content to lie in bed than are ordinary children. It is not good for boys to lie in bed, and so soon as the doctor permits a sick boy should be allowed to sit up. A boy should not be sent to bed for slight ailments, nor should he be sent to bed as a punishment. For a girl, a day in bed is often a very good thing; the comparative isolation and complete rest are often the best cure for attacks of nervousness or temper.

The sick-room window, and all other windows above the ground floor, should be protected so that children cannot climb out of them.

Every care must be taken to provide easy exits in case of fire.

Dispensary.—This will be under the charge of a nurse, and should contain such things as are likely to be used or dispensed by the doctor at his weekly visit. It is mentioned here chiefly to insist on the necessity of its

being kept carefully locked, and of the poisons being separated from other drugs.

General.—It will be seen that there is no hard and fast line which can be drawn dividing the childhood of the feeble-minded from their manhood—their school-life from their industrial life. It is necessary when the child comes into our care to let him become part of the community in which there is a natural linking-up between all the stages of his growth, dependent in every case upon his individuality and not upon his age, until, indeed, he reaches the point at which, for obvious reasons, it is necessary to separate him at night from the younger boys. Even this cannot be a fixed point. It is sometimes desirable to keep a childish boy longer with the younger ones, or to remove a precocious youth sooner from their company. Even when the big boys and girls are sent to sleep apart from the children, it is well that they should still take their meals under the eye of the matron of their house, so that a watch may be kept upon their manners and their habits of eating.

In every case what should be aimed at is to find out what it is in the feeble-minded child that is normal and to develop that so far as possible. Dr. Lapage has defined feebleness of mind as irregular failure of development. It is because the development is irregular that we find such startling incongruities in their behaviour. It is sometimes difficult to realise that their absurd and inconvenient actions are not wilful, when they have been seen to behave quite like normal beings in other matters. The more like normal beings they are treated, the better for them. Within its due restrictions their life should be that of normal people. The one thing to be remembered is that even the best of them cannot be counted on, and that, while we try to make them feel responsible, we must always remember that they are not responsible. Kindly encouragement and strict supervision must be the key-notes of their training. Absolute

division of the sexes must be maintained except for little children at lessons.

All who work with the feeble-minded must be chosen with a strict regard to their characters, and especially with a view to their self-control and patience. It should be carefully explained to them, when they are engaged, what are the difficulties to be faced, and they must be men and women who can be absolutely trusted to take care that the boys and girls shall hear nothing harmful. Especially it should be explained to them that they must not talk to the children about the outside world. The effort of everybody concerned ought to be to make the world in which the children live so very interesting to them that they will not want to leave it. This can be done. The child remains a child, whatever his age may be, he has a child's outlook, a child's pleasures and expectations. It rests with those responsible for him to decide whether he shall be a happy, good, pure child, or a plague-spot upon the face of the earth.

SANDLEBRIDGE COLONY FOR THE FEEBLE-MINDED.

Sandlebridge Colony is the outcome of the work of the Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded. This Society was founded in 1898. The somewhat clumsy name of the Society is due to the fact that it was determined from the beginning to adopt the principle that only Permanent Care could be really efficacious in stemming the great evil of feebleness of the mind in our country. The idea at first met with much opposition; no other Society was willing to entertain it, and it was obvious that it would take much work and some time to accustom people to it. Happily it is now universally regarded

as the proper method of dealing with the weak in intellect.

The first step was to convince people that the work we had pledged ourselves to was worth doing; and the second to collect funds with which to do it. Here the assistance and countenance of the late Mr Herbert Philips was invaluable. The David Lewis Trustees, of whom he was one, were asked for help and gave twenty acres of land, which Mr Ben Levy most kindly selected and personally presented to the Society.

The Society owns some two hundred acres. The first house was opened in August, 1902. There are now on the estate, which is situated in pleasant country at Great Warford, about three miles from Alderley Edge, six residential houses, a day school conducted under the regulations of the Board of Education, a hospital erected to the memory of the late Dr. Ashby, farm-houses and cottages, as well as a good laundry. The colony is lighted throughout by electricity generated on the premises. There are 170 boys and 116 girls in residence of all ages from five to thirty; 182 are over the age of sixteen. In addition to the homes for children there are two homes for adult men, Manor House and Brook House, and a house for adult women at Warford Hall. The institution is carried on under the certificates of the Board of Education and of the Board of Control. The recognised accommodation is for 200 and 295 respectively. A range of workshops costing some £5,000 is in course of erection, and it is hoped when materials become less expensive to provide a recreation room, as well as to improve some of the farm buildings, and possibly also to extend the accommodation generally. The inmates are classified according to their age and sex. Little boys, 90 in number, are in one house, boys from twelve to sixteen in the "Boys' House." Boys from sixteen to twenty-two are at Norbury Farm to sleep, but return to Manor House for





PLATE XIII. The "Wyatt Home."

meals, prayers, baths, etc. In this way a hold is kept upon their manners and behaviour. A generous friend gave the money to provide Brook House Home, and in this boys over twenty years of age are accommodated.

Girls are, at present, divided into two groups—the little girls in the “Girls’ House” and the older girls at Warford Hall. Further accommodation for girls is urgently needed.

The results of the principles upon which the colony is managed have been very happy. All the children are fully occupied from the day of their entering the school; even very little ones are trained to look after their own persons. The grown-up children justify the way in which they have been trained. They are very contented, and do a good deal of useful work, thus contributing to their own maintenance. A special instructional class has been opened for certain low-grade boys, impossible to otherwise occupy suitably, and good results have been obtained. The grown-up boys are mainly employed on the farm and in the gardens and in the shoemakers’, carpenters’, and plumbers’ shops, and some of the more delicate ones are occupied as house boys. There are over eighty head of cattle as well as pigs, poultry, etc., and the boys, always of course under strict supervision, help very efficiently in milking and in the general work of the farm.

The girls over school age are engaged in house and laundry work, sewing, knitting, etc., and it is hoped to considerably extend the scope of their occupations as well as the occupations of the boys when the new workshops are provided.

The management of the farm has passed from the hands of the late Mr C. H. Wyatt, who, as a member of the governing body, had always taken a keen interest in the work at Sandlebridge, to those of his son, Mr C. H. Wyatt, who is also a member of the governing body, and has by his untiring efforts done a great deal

to make the farm a success. Ten men are employed on the farm and gardens, and they guide the labours of those feeble-minded who are able to do work on the land.

The domestic control of the institution is in the hands of a Lady Superintendent, helped by an adequate staff of assistants. A plumber and carpenter are resident, and attend to the necessary repairs and to the electric lighting installations and also act as attendants. Each house has its own Master or Matron, and there is a full teaching staff in the day school according to the regulations of the Board of Education.

The Society is Incorporated and is managed by a Governing Body under the Chairmanship of Sir Thomas Thornhill Shann. A House Committee meets once a month at the colony.

The Hon. Secretary is Mr James S. Walker, and the Medical Officer, Dr. James McIlraith, of Alderley Edge.

All cases of sickness, except infectious ones, are treated in the Ashby Memorial Hospital, where there is a trained nurse in residence. A full dental equipment has been provided at the hospital, and Mr Mackenzie, of Wilmslow, attends when necessary. In addition the services of consulting eye and ear surgeons are available.

Applications for admission should be made to Mr E. M. Richards, General Secretary of the Society, 1 Brazenrose Street, Manchester, from whom all information may be obtained.

APPENDIX II

THE DETAILED EXAMINATION OF THE HEAD

METHODS.—Before commencing a detailed examination of the head measurements the observer should make himself familiar with certain of the external markings of the skull.

The most important of these for the purpose in hand are :—

- (1) The tragus or point just in front of the opening of the ear.
- (2) The external occipital protuberance, a projection in the middle line at the back of the head just where the skull joins the neck.
- (3) The external angular process of the frontal bone at the outer angle of the orbit.

The skull is made up of eight bones and the roof is formed by four, viz., the frontal bone in front, the occipital bone behind, and the two parietal bones on either side.

The measurement most commonly taken and the one which suffices for ordinary purposes is the greatest circumference of the head taken in inches or centimetres with a tape (not a metal) measure, but if it is desired to examine the head more thoroughly the following special measurements are of value :—

- (1) The contour tracing of the greatest circumference, taken by moulding a strip of lead* to the head and checking the diameter with callipers.

The contour of the bitragal arc or the arc of the skull as measured from ear to ear.

- (3) The contour of the naso-occipital arc or the arc of the skull as measured from the root of the nose to the external occipital protuberance. This tracing gives the slope of the forehead and the occipital development.

- (4) The height of the skull can now be measured by marking in the base of the bitragal tracing and dropping a perpendicular line on to the base from the arc at a point which is at equal distances from the two tragal marks. The length of this vertical line will represent the comparative height of the skull. Though this method may not give such an accurate measurement of the height as the one advocated by Mackenzie, it is sufficiently accurate for the purposes of comparison.

- (5) The antero-posterior and bilateral diameters have already been taken. It is much more convenient to use self-recording callipers which have a scale marked in both inches and centimetres.

A detailed examination of the heads of feeble-minded children is of value as illustrating the following points :—

- (1) To obtain a general idea of the size of the organ contained in the skull as accurately as is possible by external measurements.
- (2) To see whether there is any diminution in size of the skull,

* Lead suitable for taking these contours can be obtained from instrument makers, and callipers should be marked with a scale in both inches and centimetres. A detailed description of how to take these measurements can be found in the "Medical Chronicle" of August, 1905, and in "The Medical Inspection of School Children" by Mackenzie, Edinburgh, 1904.

and, if such be present, to determine whether it is due to defect of any one region or merely to a general under-development.

(3) To find whether asymmetry or irregularity is to be noted in a large number of cases.

(4) To discover if there is any relation between the deformity and the nature or degree of the mental deficiency.

RESULTS.—The following table shows a comparison of the heads of four different groups of twenty feeble-minded children, and twenty children taken at random from the wards of a hospital, i.e., one hundred children in all. The classification into "Good" and "Bad" refers to the mental capacity, which was in each case estimated independently by the teacher. In order that the table might be as fair as possible, the cases in each class were taken at random from the 200 cases examined before any reference had been made to the head measurements. In Column 1 the heading "Occipital greater than Frontal by Total of," represents the sum total in inches of the differences between the occipital and frontal radii (see Plate III.) in the cases in which the occipital radius was longer than the frontal. The headings of Columns 2, 4, and 5 are explained in the same way. Columns 3 and 6 show the number of cases in which the radii were equal. Column 7 shows the estimation of the general appearance, G. standing for good, F. for fair, P. for poor, and B. for bad. The last column gives in cubic centimetres the figures obtained by multiplying the length, breadth, and height together. This, though not representing the true cranial capacity, gives some approximate idea of the size of the brain.

Smallness of the maximum circumference is common in the feeble-minded; 34 per cent. of my cases had small heads if a head below 20 inches in circumference is to be regarded as small. Asymmetry, as brought out by the contour tracings, is also very common indeed. Marked asymmetry occurred in 25.9 per cent. of my cases and a lesser degree in many more. The right half of the skull as measured by the above methods is often greater than the left. The degree of inequality is estimated by taking the difference between the two parts of the bilateral diameter as divided by the line of the antero-posterior diameter (see Plate III.). In by far the majority of cases the right side was greater than the left, sometimes by as much as $1\frac{1}{2}$ inches. This asymmetry is compared in Table V., and it will be seen to occur with much greater frequency in the feeble-minded as contrasted with the children of ordinary intelligence.

Since children who showed the most marked stigmata of degeneration exhibited this lateral asymmetry to the greatest degree, it should be regarded as a stigma of degeneration.

TABLE V.

	Occipital Greater than Frontal by Total of	Frontal Greater than Occipital by Total of	Equal	Right Greater than Left by Total of	Left Greater than Right by Total of	Equal	General Appearance of Head	Average Approximate Cranial Capacity
Heads of 20 children of average intelligence - -	13½ in.	1½ in.	1	2½ in.	2½ in.	7	6 G. 9 F. 4 P. 1 B.	8105.5 c.c.
Heads of 20 feeble-minded children classed as 'Good'	11½ in.	—	3	4 in.	½ in.	4	6 G. 7 F. 7 P.	2969.6 c.c.
Heads of 20 feeble-minded children classed as 'Bad'	5½ in.	1½ in.	8	3½ in.	¾ in.	5	7 F. 6 P. 7 B.	2723.3 c.c.
Heads of 20 feeble-minded children exhibiting marked and numerous stigmata -	4½ in.	1½ in.	2	8 in.	—	5	1 G. 6 F. 12 P. 1 B.	—
Heads of 20 feeble-minded children exhibiting speech defects - - -	8½ in	1 in.	3	3½ in.	1½ in.	2	5 G. 6 F. 6 P. 3 B.	—

Another abnormality frequently shown by the tracings was deficiency of the posterior parts of the skull as compared with the anterior, the bilateral diameter being taken as dividing the skull into these two parts. The table shows this abnormality to become more and more marked as we progress from "Good" cases to "Bad" cases, and deficient occipital development is one of the most common deformities in the skull of a feeble-minded child. Ashby and Shuttleworth both describe this abnormality.

Taking the normal heads as a standard, the measurements from the point at which the diameters cross to the two ends of the antero-posterior diameter should show that the posterior division is $\frac{3}{4}$ inch to 1 inch longer than the anterior (Plate III.). In many of my cases there was marked deficiency of the posterior division of the skull as compared to the anterior part, and this fact points to the frequent occurrence of under-development of the posterior division of the skull. A diminution of the curve of the occipital bone was also shown by the naso-occipital tracing. (Plate III.)

Abnormalities of the frontal region were chiefly in the form of a general rounding when looked at from above, or under-development as shown by the lateral view.

The tracings of the bitragal arc often showed asymmetries and irregularities in the skull conformation, but no one abnormality is especially common.

It should once more be stated that these measurements refer to the skull and not necessarily to the brain.

APPENDIX III

THE DETAILED EXAMINATION OF THE SPEECH

METHOD OF TESTING.—The following is the best method of testing and analysing the defects of speech in feeble-minded children.

Attach 20 or 30 cards loosely together on string and devote one card to each consonant. The consonants and the physiological alphabet are given in Chapter V. Each card should have the description of the consonant at the top, and beneath that should be written words containing the consonant in its three positions, *i.e.*, at the beginning, at the end, and in the middle of a word. It is better to have several common words as alternatives, because many simple words are not known to a feeble-minded child. Drawings or colours must be definite in character, and it is better to have each drawing on a separate card.

The following is a reduced facsimile of the card used for P:—

P. LABIAL 1st Stop.

Voiceless Oral.

- (1) Pen—Paper.
- (2) Soap—Sheep—Top.
- (3) Paper.

The words must be chosen with regard to the ease with which they can be represented and understood by the child.

Numerals, colours, and any objects, commonly found in the room, will be found to be very useful, while all that is needed in addition to these are a few drawings and one or two small articles. Phrases such as "Silly Sarah," "Large rat," "Red lamp," may be used as additional tests in the better class of case, but they are open to objection because they have to be pronounced first by the person conducting the examination.

It is not possible to test H or Zh, and some consonants only occur at one or two of the three positions. Combinations of the consonants are more difficult to test, and also more frequently pronounced badly, but the defect is frequently traceable to imperfect pronunciation of one of the two.

TABLE VI

The following table shows the words used for each testing consonant:—

P.	(1) Pen, paper.	(2) Soap, top, pipe, cap.	(3) Paper.
B.	(1) Button, book, bag.	(2) Crab, tub. rub.	(3) Rabbit.
M.	(1) Mouth, match, man.	(2) Jam, thumb.	(3) Hammer, mamma.
W.	(1) Wood, window.	(2) —	(3) Flower.
F.	(1) Fish, five, fire.	(2) Roof, cough, laugh.	(3) Toffee, puffer.
V.	(1) Velvet, violet.	(2) Glove, five, sleeve.	(3) Seven, eleven.
Th ¹	(1) Thumb. thimble, thank.	(2) Mouth, teeth.	(3) —
Th ²	(1) The, that, this.	(2) Bathe.	(3) Mother.
S.	(1) Soap, six, scissors	(2) Face, mouse. glass.	(3) —

[Continued overleaf.]

Z.	(1) —	(2) Nose, please.	(3) Scissors.
T.	(1) Teeth, ten, two.	(2) Eight, coat, cat.	(3) Button.
D.	(1) Door, dog.	(2) Wood, lad, head.	(3) Ladder, lady.
N.	(1) Nose, nail, nine.	(2) One, pen, button.	(3) Penny, raining.
Sh.	(1) Shirt, sugar.	(2) Fish, wash.	(3) Washing.
Zh.	(1) —	(2) —	(3) —
L.	(1) Leg, lad, lead.	(2) Ball, wall, nail.	(3) Collar, yellow.
R.	(1) Rabbit, red, ring, write.	(2) Fire, door, ear.	(3) Parrot, barrow.
K.	(1) Coat, collar, cat.	(2) Book, black.	(3) Pocket, poker.
G.	(1) Gun, girl.	(2) Clog, dog, leg.	(3) Sugar.
Ng.	(1) —	(2) String, tongue.	(3) Ringing, sing- ing.
H.	(1) Head, hair.	(2) —	(3) —
(y)	(1) Yellow.	(2) —	(3) —
Pl.	Please.	Thr. Three, throw.	Sn. Snail.
Pr.	Prince.	Tw. Twelve.	Sl. Sleeve.
Bl.	Blue, black.	Sp. Speak.	Sch. School.
Br.	Brown.	Sm. Small, smack.	Tch. Chair, chin.
Fl.	Flower.	Sw. Sweet.	Tl. Little, kettle.
Fr.	Frog.	St. Stand, stick.	Tr. Train.
			Dr. Drink, draw.
			Kl. Clean, clothes.
			Gl. Glove.
			Gr. Green. Ft. Fifty
			Str. String.
			Spl. Splash.

RESULTS.—The following is a list of the consonants most commonly defective, arranged in the order of the frequency with which substitution occurred and with the most common substitute appended :—

TABLE VII

1. Th (Th)—(F) (T).
2. R—(Y) (L).
Y—(R) (L).
4. S— (T) (Ts).
5. G— (D).
Ng—(N) (Nd).
7. Sh—(Tsh) (Ts) (T).
8. K—(T).
V—(B).
9. L—(Y).
10. F—(T) (P).
11. Z—(D).
12. W—(U).
13. P—(T) (D).
14. N—(D).
15. D—(T).
16. T—(S) or (Ts).
17. N—
18. M—
19. B—

Cases illustrating speech defect in feeble-minded children are as follows :—

T. H., aged 8 years. Hesitates in speech and is much teased at school because his speech is defective. Thumb=tum; window=indow; wood=uoud; flower=thouerd; fish=tsish; fire=tuire; roof=rootd; fifty=fixy or thissy; vein=beyain; vases=barded; sleeve=tuede; five=fide; glove=gud; three=tuee; thirty=tirty; mouth=mouts; that=dat; bathe=bade; six=tsix; soap=tchoap; nose=node; toes=tode; shirt=tchirt; leg=yeg; read=yead; nail=naid; girl=gir; eleven=eyennan; raining=yaining; write=eeyite; please=puyead; fly=cly or fuy; twelve=tyed; little kettle=yuick keka; blue=beru; throw=tuo; sleeve=tuyeeve; clothes=cuyede.

W. M. C., aged 8 years. Feeble-minded; poor power of attention; speech bad; P.B.M.W.F.V. good; th=f; scissors=sithers; T.D.N. good; sh=th; sheep=theep; sugar=cugar; shirt=sirt; fish=fis; watch=watse; L. and R. good; K=t; coat=toat; cat=tat; G=D; gun=dun; green=drean; school=stool; little kettle=lickle tettle; twenty=bwenty.

APPENDIX IV

THE BINET-SIMON TESTS OF MENTAL INTELLIGENCE

THE Binet-Simon Tests were first published in 1906. A revised list was published in 1908, and a further revised list in 1911. Dr. Goddard published a modified list in 1911. The wording has been further modified by the late Dr. Huey and is as follows :—

Mentality of 1-2 years.—(1) Eye follows light. (2) Block placed in hand is grasped and handled. (3) Suspended cylinder grasped and seen. (4) Candy chosen instead of block. (5) Paper is removed from candy before eating, child having seen wrapping. (6) Child executes simple commands and imitates simple movements.

Mentality of 3 years.—(7) Touches nose, eyes, mouth, and pictures of them as directed. (8) Repeats easy sentences of six syllables with no error. (9) Repeats two numerals. (10) Enumerates familiar objects in pictures. (11) Gives family name.

Mentality of 4 years.—(12) Knows own sex. (13) Recognises key, knife, penny. (14) Repeats three numerals in order when heard once. (15) Tells which is longer of lines differing by one centimetre.

Mentality of 5 years.—(16) Discriminates weights of 3 and 12

grammes, 6 and 15 grammes. (17) Draws after copy a square that can be recognised as such. (18) Repeats:—"His name is John, he is a very good boy," and similar sentences. (19) Counts four pennies. (20) Rearranges a rectangular card that has been cut diagonally into two triangles.

Mentality of 6 years.—(21) Knows whether it is forenoon or afternoon. (22) Defines in terms of use the words, "fork, table, chain, horse, mamma," three satisfactorily. (23) Performs three commissions given simultaneously. (24) Shows right hand and left ear, etc. (25) Distinguishes pretty from distinctly ugly or deformed faces in pictures.

Mentality of 7 years.—(26) Counts 13 pennies. (27) Describes pictures shown in No. 10. (28) Notes omission of eyes, nose, mouth, or arms from as many portraits, three of the four. (29) Draws diamond shape from copy so that it can be recognised. (30) Names "red, green, blue, yellow"—matches colours.

Mentality of 8 years.—(31) States difference between "paper and cloth, butterfly and fly, wood and glass" in two minutes, and two satisfactorily. (32) Counts from 20 to 100 in twenty seconds with not more than one error. (33) Names days of week in order in 10 seconds. (34) Counts value of six stamps, three ones and three twos, in less than 15 seconds. (35) Repeats five numerals in order when pronounced once.

Mentality of 9 years.—(36) Gives correct change for 20 cents. (or 2 dimes); paid for an article costing 4 cents. (37) Defines in terms superior to statements of use, in No. 22. (38) Names day, month, day of month, year, allowing error of three days either way day of month. (39) Names the months in order, allowing one omission or inversion in 18 seconds. (40) Arranges in order of weight boxes of same size and appearance, weighing 6, 9, 12, 15, and 18 grammes in 3 minutes; two out of three trials.

Mentality of 10 years.—(41) Names a penny, nickel, dime, quarter, etc., in 40 seconds. (42) Copies design after 10 seconds' exposure. (43) Repeats six numerals. (44) Tells what one should do in various emergencies, and answers questions difficult of comprehension. (45) Uses three given words in sentences.

Mentality of 11 years.—(46) Detects nonsense in three out of five statements in about two minutes. (47) Uses three given words in one sentence. (48) Gives at least sixty words in three minutes. (49) Names three words that rhyme with "obey" in one minute. (50) Rearranges shuffled words of eight-word sentences, two out of three, with one minute for each.

Mentality of 12 years.—(51) Repeats seven numerals in order when heard once. (52) Defines "charity, justice, goodness," two satisfactorily. (53) Repeats with no error sentence of 23-26 syllables. (54) Resists suggestion as to length of lines. (55) Infers correctly the fact indicated by circumstances given in each of two trials.

Mentality of 15 years.—(56) Interprets pictures shown in No. 10 and 27. (57) Imagines clock-hands interchanged for hour 6-20 and for hour 2-56, telling the time. (58) Writes "caught a spy" in symbols after leaving code, one error permitted. (59) Writes correctly the opposite of 17 out of 20 given words.

Binet's articles were published in *L'Année Psychologique* for 1908, and in the *Bulletin de la Société libre pour l'Etude Psychologique de l'Enfant* for April, 1911. Dr. Goddard's article, "The Binet-Simon Measuring Scale for Intelligence," 1911, and the descriptive cases in his book, 1914, give good examples of the application of these tests, as does also Dr. Huey's book (1912), in which there is an excellent and full description of the tests and how to apply them. In *School Hygiene* for May, 1913, Dr. Kate Fraser gives a description of how to apply the tests.

APPENDIX V

CERTIFICATES AND FORMS

(1) Schedule A for backward children—

Elementary Education (Defective and Epileptic Children)
Act, 1899. Mental Deficiency Act, 1913

SCHEDULE A

School (if any),

Name of Child (in full),

Date of Birth,

I certify that this child is not incapable, by reason of mental defect, of receiving benefit from the instruction in an ordinary Public Elementary School.

Signed,

Date,

Certifying Officer.

- (2) Schedule B for special day or residential school cases—
 Elementary Education (Defective and Epileptic Children)
 Act, 1899. Mental Deficiency Act, 1913

SCHEDULE B

School (if any),

Name of Child (in full),

Date of Birth,

I certify that this child, not being merely dull or backward, and not being an idiot, an imbecile, or a moral imbecile, is feeble-minded within the meaning of the Mental Deficiency Act, 1913, but is not incapable by reason of mental defect of receiving benefit from instruction in a special school or class under the Elementary Education (Defective and Epileptic Children) Act, 1899.

Signed.....

Date..... *Certifying Officer.*

- (3) Schedule C for cases needing custodial care—
 Elementary Education (Defective and Epileptic Children)
 Act, 1899. Mental Deficiency Act, 1913

SCHEDULE C

School (if any),

Name of Child (in full),

Date of Birth,

I certify that this child is incapable, by reason of mental defect, of receiving benefit from instruction in a special school or class under the Elementary Education (Defective and Epileptic Children) Act, 1899.

NOTE.—Under the Elementary Education (Defective and Epileptic Children) Act, 1899, idiots and imbeciles are excluded from special schools and classes certified under that Act.

Signed.....

Date..... *Certifying Officer.*

- (4) Schedule D for children who have been in a special day or residential school—

Elementary Education (Defective and Epileptic Children)
Act, 1899. Mental Deficiency Act, 1913

SCHEDULE D

School (if any),

Name of Child (in full),

Date of Birth,

I certify that this child is incapable, by reason of mental defect, of receiving further benefit from instruction in a special school or class under the Elementary Education (Defective and Epileptic Children) Act, 1899.

Signed.....
Date..... *Certifying Officer.*

- (5) Schedule E for cases referred to the Board of Education under Section 81 (1) of Mental Deficiency Act—

Elementary Education (Defective and Epileptic Children)
Act, 1899. Mental Deficiency Act, 1913

SCHEDULE E

School (if any),

Name of Child (in full),

Date of Birth,

I certify that this child cannot be instructed in a special school or class under the Elementary Education (Defective and Epileptic Children) Act, 1899, without detriment to the interests of the other children.

Signed.....
Date..... *Certifying Officer.*

The following forms are important, but, owing to consideration of space, they are not printed in full. The first can be obtained from the Government Stationery Offices :—

(1) Schedule F of the Board of Education. This fills the four pages of a double sheet of foolscap, the first two and a half pages containing the points in relation to the medical examination divided under the following sub-headings :—

- (a) Particulars in relation to the child in school.
- (b) Home conditions.
- (c) Family history.
- (d) School history.
- (e) Personal history.
- (f) Physical condition.
- (g) Stigmata.
- (h) Mental condition.
- (i) Sensory mechanism.
- (j) Educational attainments.
- (k) Diagnosis.
- (l) Suggestions for treatment and training.

and the remainder of the form being for (n) subsequent reports, (o) reports on leaving, and (p) reports after leaving.

(2) Form used in accordance with 10 (a, b) (11) of the Regulations for special schools issued by the Board of Education in 1917, which reads as follows :—

“The medical practitioner shall, if so directed by the Local Education Authority, or if so requested by the parent of the child, before giving a certificate consult the head teacher of the school, if any, which the child has been attending, or such other person as the Local Education Authority may appoint for the purpose, and a copy of any report made by the head teacher or such other person shall be forwarded to the Local Education Authority.”

This form is to be filled in by a teacher of an ordinary school sending a child to be examined with the view to admission to a special school or class for mentally defective children, and contains headings which, when filled in, give an idea of the attendance, behaviour, cleanliness, and general intelligence of the child.

(3) Form F6, i.e., a form of application for admission of a Defective to Certified Institutions or Approved Homes issued by the Central Association for the care of the Mentally Defective.

This form is headed "Private and Confidential." It covers the four sheets of a double page of foolscap and asks for information—

- (a) With regard to the general behaviour and life history of the candidate.
- (b) Full information as filled in by a qualified medical practitioner. The medical information asked for is exhaustive, and covers the medical history of the present condition of the child, including all defects and abnormalities, the mental state, and the family history with regard to any hereditary taint.

APPENDIX VI

LIST OF INSTITUTIONS FOR MENTALLY DEFECTIVE CHILDREN IN ENGLAND AND WALES, SCOTLAND, IRELAND AND FOR THE FEEBLEMINDED AND EPILEPTIC IN AMERICA

The following is a list of some of the larger of the Institutions in England and Wales dealing with children, compiled from a list kindly sent by the Board of Control, revised 17th September, 1919.

A full list is given in the Annual Report of the Board of Control, Part II., published by His Majesty's Stationery Office, 4/6 net.

Certified Homes and Approved Homes are not included in the list for reasons of economy and space. Particulars of these can be obtained from the above report.

In the following are given (1) county, (2) address, (3) names of managers or owners, (4) name of superintendent, and (5) numbers and classes of patients.

STATE INSTITUTIONS

(NOT FOR CHILDREN)

1. Surrey.—Farmfield, Charlwood, Horley; the Board of Control, 66 Victoria Street, London, S.W.1; S.E. Gill, M.D.; 95 female defectives of dangerous or violent propensities.
2. Warwick.—Warwick State Institution, Warwick; the Board of Control, 66 Victoria Street, London, S.W.1; Miss M. I. Dick; female defectives of dangerous or violent propensities—number limited at present to 100.

INSTITUTIONS CERTIFIED UNDER THE MENTAL DEFICIENCY ACT, 1913

1. Cheshire.—Sandlebridge, Alderley Edge; Lancs. and Cheshire Society for Permanent Care; Miss Grace Wyatt; 295 higher-grade defectives of either sex. *Certified by Board of Education for 115 boys and 85 girls.*
2. Derby.—(a) The Hopewell Hall Colony, near Derby; Notts Association for Permanent Care; Mrs Harriet M. Swinburne; 16 male feeble-minded cases over the age of seven years. *Certified by Board of Education for 38 cases.*
(b) Whittington Hall (Midland Counties Institution), Chesterfield; The Incorporation of National Institutions for Persons requiring Care and Control; Warden—Rev. H. N. Burden, 14 Howick Place, Victoria Street, London, S.W.1; Miss Ellen Smith; 400 female patients—all grades of mental defect, majority over school age. See also Stoke Park, Bristol.
3. Devon.—Western Counties Institution, Starcross, near Exeter; Committee of Management; E. W. Locke; 230 males and 106 females. *Certified by Board of Education for 83 boys or girls.*
4. Essex.—(a) Bigods Hall, near Dunmow; Committee of Management; Sister Mary A. Ryan; 6 male patients; imbeciles and feeble-minded up to the age of sixteen years.
(b) Royal Eastern Counties Institution, Colchester; Board of Directors; F. D. Turner, M.B.; 512 male and female patients; *certified by Board of Education for 32 boys or girls*; 60 female patients, of whom not more than 10 shall be high-grade cases over 16 and not exceeding 24 years of age, the remainder to be educable and of school age.
5. Gloucester.—Stoke Park and other premises, Bristol; The Incorporation of National Institutions for Persons requiring Care and Control; Miss Gladys Williams; 1,578 defectives of all classes within the meaning of the Act, including young children.
6. Herts.—(a) Hillside, Buntingford, Hertford; Westminster Diocesan Education Fund; Sister Catherine O'Toole; 40 male patients, being cases of an age and of a degree of mental defect such as would permit of their being housed and instructed with children for whom the school is primarily intended.

- (b) St. Elizabeth's Home for Epileptics, Much Hadham; Committee; Sister Mary Edmund; school, 3 males and 3 females; *certified by Board of Education for 14 boys and 42 girls*; colony, 80 adult females; idiots, imbeciles, and feeble-minded cases of the Roman Catholic religion.
7. Kent.—Princess Christian's Farm Colony, Hildenboro', Kent. National Association for the Feeble-minded; Miss Pitman; 60 males, 68 females.
8. Lancashire.—(a) Allerton Priory R.C. Special (M.D.) School, Woolton, Liverpool; Board of Management; Sister Catherine Flannery; 5 males and 10 females; feeble-minded cases under the age of 16 years and such as can be conveniently and properly trained with the other children in the Institution. *Certified by Board of Education for 24 boys and 82 girls.*
- (b) Brockhall, Langho, near Blackburn; Lancashire Asylums Board; Sir Harcourt E. Clare (Clerk); F. A. Gill, M.D.; 258 female imbeciles, feeble-minded, and moral imbeciles; only Lancashire cases are received, and idiots and epileptics are not received.
- (c) Dovecot (Horticultural School), Knotty Ash, Liverpool; The Liverpool Ladies' Association for the Care and Training of Girls; Miss Florence Eyre; 15 high-grade feeble-minded girls; age on admission from 10 to 12 years; Roman Catholics not received. *Certified by Board of Education for 36 girls.*
- (d) Pontville R.C. Special School, Aughton, Ormskirk; Committee; Sister C. Cullinan; 10 male patients; Roman Catholic feeble-minded children between the ages of 5 and 16 years. *Certified by the Board of Education for 98 boys and 15 girls.*
- (e) Royal Albert Institution, Lancaster; Central Committee of Management; W. H. Coupland, L.R.C.P., L.R.C.S.Ed.; 461 males and 289 females.
9. London.—(a) 39 Downs Road, Clapton, E.5, with ancillary premises; The Committee of the Girls' Training Homes, Clapton; Miss Emma Aubery; 25 feeble-minded cases of the female sex aged 8 years and upwards, all of childish attainments and habits; must be Protestants; not more than two to be private patients.
- (b) South Side Home, Streatham Common, S.W.16; The London Asylums and M.D. Committee; Miss Elizabeth J. Price; 80 females; imbeciles, feeble-minded, and moral imbeciles; higher-grade cases, chiefly above 16 years of age, but including some younger children and

physically defective cases, to be accommodated on the ground floor; reserved for London cases only.

10. Middlesex.—(a) Crathorne, Oak Lane, East Finchley, N.2; The Committee of the Finchley Home for Feeble-minded Mothers and their Children; Hon. Secy., Mrs Moss-Blundell, 7 North Grove, Highgate, London, N.; Miss Emma D. Saltwell; 32 mothers and their children who are feeble-minded or moral imbeciles; the number of mothers never to exceed 20, and no child to be retained beyond the age of 7 years; Poor Law cases received.
(b) Pield Heath House School, Hillingdon, Uxbridge; Committee; Sister Winefride Tyrrell; 10 females; feeble-minded and moral imbeciles of the Roman Catholic religion. *Certified by Board of Education for 62 girls.*
11. Somerset.—(a) Rock Hall House (Magdalen Hospital School), Combe Down, Bath; Municipal Charity Trustees of the City of Bath; Miss Jane Quinton; 38 children of both sexes.
(b) Stoke Park, Bristol, with ancillary premises. (See under County of Gloucester.)
12. Surrey.—The Royal Earlswood Institution for Mental Defectives, Redhill; Board of Management; C. Caldecott, M.B.; about 600 patients of both sexes.
13. Warwick.—Midland Counties Institution, Knowle, near Birmingham; General and Managing Committee; A. H. Williams; 150 patients of both sexes.
14. Worcester.—Besford Court Home, near Defford; Committee of Management; Rev. T. A. Newsome; 7 male and 5 female defectives; cases of an age and of a degree of mental defect such as would permit of their being housed and instructed with the children for which the school is primarily intended; and 25 additional defectives over 16 years and under 21 years of age, of whom not more than 19 are to be females. *Certified by Board of Education for 73 boys and 46 girls.*
15. Yorkshire.—(a) Bradford County; Ashfield, 269 Thornton Road, Thornton, near Bradford; County Borough Council of Bradford; F. H. Macdonald; 36 male patients, able bodied, over the age of 7 years.
(b) West Riding, Leeds County; Meanwood Park Colony, Meanwood, Leeds; County Borough of Leeds; Miss Frances Cooke; 35 males and 52 females; idiots, imbeciles, and feeble-minded—male cases to be not more than 14 years of age.

PREMISES APPROVED UNDER SECTION 37,

MENTAL DEFICIENCY ACT, 1913

17. Essex.—The Forest Gate Sick Home, Forest Lane, West Ham; The Guardians of the West Ham Union; J. S. Greig; 10 male and 30 female adult defectives, and 10 male and 15 female defectives under the age of 16 years; all classes within the meaning of the Act. *Certified by Board of Education for 15 cases.*
18. Kent.—The Poor Law Institution, Tenterden; The Guardians of the Tenterden Union; Master of the Institution; 55 female defectives; all classes within the meaning of the Act; 35 girls 5-21 years of age. no low-grade cases.
19. Lancashire.—Seafeld House, Seaforth, near Liverpool; The Guardians of the West Derby Union; S. J. Towill; 80 males and 189 females of all classes under the Act.
20. London.—The Metropolitan Asylums Board Certified Institution; The Metropolitan Asylums Board, Embankment, London, E.C.4; Darenth Industrial Colony and Bridge Industrial Home, Witham; E. B. Sherlock, M.D.; Juvenile trainable cases; Leavesden Asylum, F. A. Elkins, M.D., unimprovable children and adults; Caterham Asylum, P. E. Campbell, M.B., unimprovable children and adults; Fountain Temporary Asylum, J. L. Gordon, M.D., idiot children.
21. Middlesex.—(a) Fortescue Villas, Gentleman's Row, Enfield; The Guardians of the Edmonton Union; E. B. Willett, M.D.; 32 female defectives under the age of 16 years—idiots, imbeciles, and a limited number of feeble-minded cases.
(b) Warkworth House, Isleworth; The Guardians of the Brentford Union; A. Milsom; 38 males; idiots and imbeciles (children).
22. Northumberland.—Prudhoe Hall Colony and Burn House, Prudhoe-on-Tyne; The Northern Counties Joint Poor Law Committee, South Shields; Miss Nesta M. Hawkes; 185 defectives, of whom not more than 80 shall be males and not more than 105 shall be females; 89 females at Prudhoe Hall Buildings, 16 females at Burn House, and 80 males at New Blocks; children of all grades of mental defect received but chiefly the higher grades.
23. Stafford.—Great Barr Park, Great Barr, near Birmingham; The Walsall and West Bromwich Unions Joint Com-

mittee; W. Maule Smith, M.D.; 40 male adult defectives and 40 boys under the age of 16 years; all classes within the meaning of the Act.

24. Westmorland.—The Poor Law Institution, Milnthorpe; The Guardians of the Kendal Union; C. Matthews; 72 defectives, consisting of 23 adult males, 21 adult females, and 28 children; all classes within the meaning of the Act.
25. Birmingham.—Monyhull Colony, King's Heath; The Guardians of the Birmingham Union; Miss Mary J. Carse; 80 male and 80 female defectives; those under 5 and over 40 years of age, as well as those incapable of being trained, excluded.

LIST OF INSTITUTIONS IN SCOTLAND

Kindly supplied by the General Board of Control, Scotland.

1. Dundee.—Baldovan, near Dundee; Dr. Drummond; 260 beds; all classes of children under the Mental Deficiency Act.
2. Bridge-of-Weir.—Bridge-of-Weir; Dr. Crocket; 112 beds; licensed to receive educable children of Protestant religion and of school age; also receives epileptics.
3. Larbert.—Larbert; Dr. Clarkson; 500 beds; all classes of children under the Mental Deficiency Act.
4. Glasgow.—St. Charles, Whiteinch, Glasgow; Sister McDonnell; 70 beds; educable defectives of the Roman Catholic religion between 5 and 16 years of age.
5. Kirkintilloch.—Waverley Park, Kirkintilloch; Mr A. H. Charteris; 90 beds; educable defective girls between 5 and 16 years of age.

LIST OF INSTITUTIONS IN IRELAND

1. Co. Dublin.—Stewart Institution, Palmerston, Co. Dublin; F. E. Rainsford, M.D.; for idiotic and imbecile children and hospital for mental diseases; for Protestant children only. Certified inmates, 113, i.e., 78 boys and 35 girls.

LIST OF PUBLIC INSTITUTIONS FOR THE FEEBLE-
MINDED AND THE EPILEPTIC IN THE
UNITED STATES

From a list kindly supplied by Dr. Walter E. Fernald, M.D., and given in his publication, "The Growth of Provision for the Feeble-minded in the United States." The National Committee for Mental Hygiene, Inc., 50 Union Square, New York City. Second Printing, 1919.

1. Arkansas.—Institution authorised. For feeble-minded.
2. California.—Sonoma State Home, Eldridge. F. O. Butler, M.D. For feeble-minded and epileptics. Capacity, 1,345.
3. Colorado.—State Home and Training School for Mental Defectives, Arvada (P.O., Ridge). A. P. Busey, M.D. For feeble-minded and epileptics. Capacity, 81.
4. Connecticut.—Mansfield State Training School and Hospital: (a) Colony for Epileptics, Mansfield Depot. (b) Training School for Feeble-minded, Lakeville. Charles T. La Moure, M.D. Capacity, 550.
5. Delaware.—Institution authorised. For feeble-minded. The State supports 13 feeble-minded at the Training School for Feeble-minded Children, Elwyn, Pennsylvania.
6. District of Columbia.—The District supports 45 feeble-minded at the Training School for Feeble-minded Children; Elwyn, Pennsylvania, and maintains others in private institutions in Virginia and New Jersey.
7. Idaho.—State Sanitarium, Nampa. For both feeble-minded and epileptics. Building partially erected.
8. Illinois.—(a) Industrial Colony for Improvable Epileptics, Dixon. (b) Lincoln State School and Colony, Lincoln. T. H. Leonard, M.D. For feeble-minded. Capacity, 2,000.
9. Indiana.—(a) School for Feeble-minded Youth, Fort Wayne. George S. Bliss, M.D. For feeble-minded girls and boys 6 to 16 years old, and feeble-minded women 16 to 45. Capacity, 1,391. (b) Village for Epileptics, New Castle.
10. Iowa.—(a) Institution for Feeble-minded Children, Glenwood. George Mogridge, M.D. Established and opened 1876. For feeble-minded. Capacity, 1,500. (b) State Hospital and Colony for Epileptics, Woodward.
11. Kansas.—(a) State Home for Feeble-minded, Winfield. F. C. Cave, M.D. For Feeble-minded. Capacity, 700. (b) State Hospital for Epileptics, Parsons.
12. Kentucky.—State Institution for the Feeble-minded:—(a)

- Training School for the Feebleminded, Frankfort. S. L. Helm, M.D. Established 1860, opened 1861. Admits feebleminded children 6 to 18 years old, who can be educated or trained. Capacity, 400. (b) Farm Colony for the Feebleminded.
13. Maine.—School for Feebleminded, West Pownal. Carl J. Hedin, M.D. Admits feebleminded males between 6 and 40 years, females between 6 and 45 years. Capacity, 283.
 14. Maryland.—Rosewood State Training School, Owings Mills. Frank W. Keating, M.D. For feebleminded. Capacity, 700.
 15. Massachusetts.—(a) School for Feebleminded, Waltham (Waverley P.O.). Walter E. Fernald, M.D. Established and opened 1848. For feebleminded children. Capacity, 1,625 (including about 300 in Colony at Templeton). (b) Monson State Hospital, Palmer. (c) School for Feebleminded, Belchertown. Authorised but not yet built. (d) Wrentham State School, Wrentham. George L. Wallace, M.D. For feebleminded. Capacity, 1,200.
 16. Michigan.—(a) Farm Colony for Epileptics, Wahjamega (Caro P.O.). (b) Home and Training School, Lapeer. H. A. Haynes, M.D. For feebleminded over 6 years. Capacity, 1,481.
 17. Minnesota.—School for Feebleminded and Colony for Epileptics, Faribault. For feebleminded and epileptics. Capacity, 1,600.
 18. Missouri.—Colony for Feebleminded and Epileptics, Marshall. R. P. C. Wilson, M.D. Capacity, 1,000.
 19. Montana.—Training School for Backward Children, Boulder. Herbert J. Menzemer. For feebleminded children. Capacity, 94.
 20. Nebraska.—Institution for the Feebleminded, Beatrice. D. G. Griffiths, M.D. For feebleminded. Capacity, 600.
 21. New Hampshire.—School for Feebleminded, Laconia. B. W. Baker, M.D. For feebleminded children. Capacity, 280.
 22. New Jersey.—(a) State Institution for Feebleminded, Vineland. Madeleine A. Hallowell, M.D. For feebleminded. Capacity, 785. (b) State Village for Epileptics, Skillman. (c) The State maintains 380 feebleminded children, some entirely, some partially, in the Training School at Vineland—a private institution. An appropriation of \$15,000 was made by the Legislature of 1916 for the establishment of colonies for the feebleminded on forest reserves or other State lands.
 23. New York.—(a) Craig Colony for Epileptics, Sonyea. (b)



PLATE IV. Abnormalities of the External Ear.



- Letchworth Village, Thiells. F. J. Russell, M.D. For feeble-minded and epileptics of unsound mind, not insane. Capacity, 330. (c) New York City Children's Hospital and Schools, Randall's Island. J. F. Vavasour, M.D. For feeble-minded and epileptic children of New York City. Capacity, 1,940. (d) Rome State Custodial Asylum, Rome. Charles Bernstein, M.D. For feeble-minded. Capacity, 1,580. (e) State Custodial Asylum, Newark. Ethan A. Nevin, M.D. For feeble-minded women of child-bearing age. Capacity, 1,050. (f) Syracuse State Institution for Feeble-minded Children, Syracuse. O. Howard Cobb, M.D. Established and opened 1851. For feeble-minded children under 16 years old capable of improvement. Capacity, 607.
24. North Carolina.—(a) Caswell Training School, Hines (Kinston P.O.). C. B. M'Nairy, M.D. For feeble-minded over 6 years old. Capacity, 200. (b) State Colony for Epileptics, Raleigh.
25. North Dakota.—Institution for Feeble-minded, Grafton. A. R. T. Wylie, M.D. For feeble-minded and epileptics. Capacity, 263.
26. Ohio.—(a) Institution for Feeble-minded, Columbus. E. J. Emerick, M.D. Established and opened 1857. For feeble-minded. Capacity, 2,200. (b) Hospital for Epileptics, Gallipolis.
27. Oklahoma.—Institution for Feeble-minded, Enid. W. L. Kendall, M.D. For feeble-minded 5 to 16 years old; if over 16 maintenance must be paid. Capacity, 400.
28. Oregon.—State Institution for Feeble-minded, Salem. For feeble-minded and epileptics. Capacity, 310.
29. Pennsylvania.—(a) Eastern Pennsylvania State Institution for the Feeble-minded and Epileptic, Spring City. William J. Steward, M.D. For feeble-minded and epileptics. Capacity, 1,159. (b) State Institution for Feeble-minded of Western Pennsylvania, Polk. J. M. Murdoch, M.D. For feeble-minded. Capacity, 1,773. (c) Village for Feeble-minded Women, Laurelton. Mary M. Wolfe, M.D. To be opened September, 1919. For feeble-minded women of child-bearing age. (d) The State maintains 700 feeble-minded children at the Training School for Feeble-minded Children, Elwyn, and 30 children in the Pennsylvania Epileptic Hospital and Colony Farm at Oakbourne—both private institutions. (e) The City of Philadelphia is now erecting a large institution for its feeble-minded at Byberry, a suburb.

30. Rhode Island.—Exeter School, Exeter (Slocum P.O.). Joseph H. Ladd, M.D. For feeble-minded. Capacity, 330.
31. South Carolina.—Institution authorised.
32. South Dakota.—State School and Home for the Feeble-minded, Redfield. J. K. Kutnewsky, M.D. For feeble-minded and epileptics. Capacity, 303.
33. Texas.—(a) State Colony for the Training of the Feeble-minded, Austin. J. W. Bradfield, M.D. (b) State Epileptic Colony, Abilene.
34. Vermont.—State School for the Feeble-minded, Brandon. T. J. Allen, M.D. For feeble-minded children 5 to 21 years old. Capacity, 171.
35. Virginia.—(a) Colony for Feeble-minded. A department of the State Epileptic Colony for white women of child-bearing age. Capacity, 112. A colony for negro feeble-minded was established in 1914 (not yet opened) as a department of the Central State Hospital for the Insane at Petersburg. (b) State Epileptic Colony, Madison Heights (near Lynchburg).
36. Washington.—State Institution for Feeble-minded, Medical Lake. S. C. Woodruff. For feeble-minded and epileptic children under 21 years and feeble-minded adults under 50 years. Capacity, 600.
37. Wisconsin.—(a) Southern Wisconsin Home for the Feeble-minded and the Epileptic, Union Grove. H. C. Werner, M.D. Capacity, 300 at opening; when completed capacity will be 1,476. (b) Home for Feeble-minded, Chippewa Falls. Alfred W. Wilmarth, M.D. For feeble-minded. Capacity, 1,160.
38. Wyoming.—State School for Defectives, Lander. J. H. Hutchins, M.D. For feeble-minded and epileptics. Capacity, 100.

Further particulars regarding Institutions and Homes can be found in:—

The Reports of the Central Association for the Care of the Mentally Defective. Hon. Secy., Miss Evelyn Fox, Queen Anne's Chambers, Tothill Street, Westminster, London, S.W.1.

The Annual Charities Register and Digest. Longmans & Co. Burdett's Hospitals and Charities. London: The Scientific Press, Ltd.

The Medical Directory. London: Churchill.

The List of Certified Schools for Blind, Deaf, Defective, and

Epileptic Children in England and Wales, issued by the Board of Education. Wyman & Sons.

Classified List of Institutions, published by the Reformatory and Refuge Union, 117 Victoria Street, London, S.W.1.

List of Institutions, Certified Houses, and Approved Homes, issued by the Board of Control, 66 Victoria Street, London, S.W.1.

Reports and Publications, issued by Societies dealing with the Feeble-minded, set forth on page 281.

The following are the addresses of Societies dealing with the mentally defective:—

The Central Association for the Care of the Mentally Defective.

Hon. Secy., Miss Evelyn Fox, Queen Anne's Chambers, Tottenham Street, Westminster, London, S.W.1.

The National Association for the Feeble-minded, Denison House, 296 Vauxhall Bridge Road, S.W.

Glasgow Association for the Care of the Feeble-minded. Hon. Secy., A. H. Charteris, 19 St. Vincent Place, Glasgow.

Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded. Hon. Secy., Mr J. S. Walker, 1 Brazen-nose Street, Manchester.

The Charity Organisation Society, Denison House, Vauxhall Bridge Road, S.W.1.

The Metropolitan Asylums Board, Victoria Embankment, E.C.4.

The Incorporation of National Institutions for Persons requiring Care and Control. Warden, Rev. H. N. Burden, 14 Howick Place, Victoria Street, S.W.1.

Association for the Employment of the Physically and Mentally Defective. Hon. Secy., Miss Arnould, 39 Lillie Road, London, S.W.

Brighton Guardianship Society. Secy., Miss Woodhead, 82 Grand Parade, Brighton. (For boarding out defectives.)

Westminster Diocesan Education Fund. Secy., Mr T. W. Hunter, Archbishop's House, Westminster, S.W.1. (Roman Catholic Schools and Homes.)

Homes for Catholic Defective Children. Administrator, Rev. T. A. Newsome, Besford Court, Worcestershire.

Society of the Crown of Our Lord. Secy., Miss B. James, 10 Burton Court, Sloane Street, London, S.W.1. (Home for Feeble-minded Girls.)

Committee of the Association for Helping Deficient Children, 20 Gower Street, London, W.C.1.

Local Associations for the Care of the Mentally Defective. These number about 40, and they work in conjunction with the Local Statutory Authorities. A list of the Local Associations with

extracts of their Annual Reports will be found in the Annual Reports of the Central Association for the Care of the Mentally Defective.

APPENDIX VII

PLANS AND DESCRIPTION OF THE " WYATT " HOUSE AT SANDLEBRIDGE, A BUILDING SUITABLE FOR A RESIDENTIAL SCHOOL

Published by the kind permission of the Board of Governors of the Sandlebridge Colony.

The building is divided into two parts by rooms for administration occupied by the Matron and Staff. A service staircase is provided in the centre of the building, by which the Matron and Staff have access to all the rooms, but each wing is strictly reserved for the children for whom it is provided.

The girls' side consists of dining-room, play-room, cloak-rooms, etc., on the ground floor, and above on the first floor are two dormitories, each supervised from an adjacent room (which is occupied by a member of the staff), bathrooms and lavatories with hot and cold water.

The boys' part is on the other side of the building, and consists of similar accommodation. Each wing is provided with a well-constructed staircase for the use of the children.

There are no internal latrines in the building—these are provided in the yard. In case of sickness a room for an earth closet is provided in each wing.

The building is of plastic (Accrington) brick, with terra cotta facings throughout. All the rooms have tiled dadoes, the walls above dado height being finished in plaster.

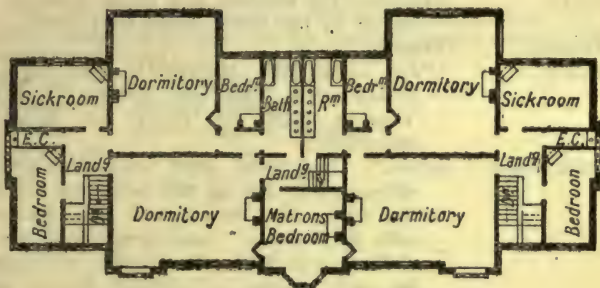
The heating throughout is by open fireplaces, all provided with fireguards. There is an ample supply of town's water from the public mains.

The scheme has been to provide a building of first-class character without any extravagance. Internal passages have, as far as possible, been dispensed with. All windows are made to open top and bottom. A distinct feature of the building is that there is not a dark corner in any of the rooms. There are wash bowls at the entrance of each wing. The floors are of wood throughout with the exception of kitchen, bathroom, and lavatories; these are of lignite, an impervious flooring material, which has the advantage of being warmer than concrete.

The cost for 65 children worked out at £74 a head in 1905.



- ATTIC PLAN. -



FIRST FLOOR PLAN.



Scale of Feet.

0 5 10 20 30 40

- GROUND FLOOR PLAN. -

SANDLEBRIDGE COLONY—WYATT HOUSE

TIME TABLE

Monday to Friday inclusive.

6.30 a.m.	Staff arise.
6.45 a.m.	Children arise and dress.
7.0 a.m.	Bedmaking, dormitory cleaning, by older boys with attendant. Younger boys taken down by the attendant; boots cleaned; washed for breakfast.
8.0 a.m.	Breakfast for children and Staff, prepared and served by the cook; older boys assist.
8.30 a.m.	Prayers.
8.40 a.m.	Older boys with attendants wash up, tidy dining-rooms, and get ready for school. Younger boys got ready for school by attendant.
9.30-12.0 noon.	School.* The house boys finish dining-rooms, offices, yard, tidy up the paths and sweep up the shed. Two house boys help housemaid with Staff rooms. Cook prepares dinner for children and Staff. Attendants do the mending and making of clothes during school hours.
12.0 noon.	Dinner for children and Staff.
1.0 p.m.	Younger boys play until school time. Older boys with attendants wash up, clean up in kitchen, tidy up dining-rooms, and prepare for school.
2.0-3.30 p.m.	School.* House boys tidy up generally. Sometimes go for a walk, sometimes employed in repairing stockings and knitting, and sundry other occupations.
3.30-4.15 p.m.	Games for all, with attendant.
4.15 p.m.	Older boys clean their own boots.
4.30 p.m.	Strip wash for all, followed by tooth-brush drill, with attendant.
5.30 p.m.	Tea for children.
6.15 p.m.	Prayers and preparation for bed.
7.0-7.30 p.m.	Bed-time.

Bathing—Tuesday, Thursday, and Friday nights.

* In the Thomasson and Sam Gamble day school adjoining.

DAILY ROUTINE

273

Saturday.

- 6.30-8.40 a.m. Usual routine.
8.40 a.m. All buttons, boots, clothing overlooked and replaced, which usually takes up all the morning.
12.0-2.0 p.m. Usual routine.
2.0 p.m. Games or walks according to weather.
From 4.15 p.m. Usual routine. All boots cleaned.

Sunday.

- Rise half an hour later. Usual routine till the tidying up is done, except that there are no boots to clean; then a walk until dinner time.
12.0-2.0 p.m. Usual routine.
2.0-3.0 p.m. Sunday School.
3.0-4.30 p.m. Quiet time with books.
From 4.30 p.m. Usual routine.

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- Acts, Regulations, etc., such as:—(1) Mental Deficiency Act, 1913, pp. 43, 4½d.; (2) Provisional Regulations, Secretary of State for the Home Department, 1914 (178), pp. 66, 3½d.; (3) Statutory Rules and Orders, 1915, regarding the Transfer of Patients (975), pp. 2, 1d.; (4) Elementary Education (Defective and Epileptic Children) Act, 1899, pp. 6, 1d.; (5) Elementary Education (Defective and Epileptic Children) Act, 1914, pp. 5, 1d.; (6) Board of Education Regulations, etc.
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GLOSSARY

Amentia.—A term synonymous with Mental Deficiency.

Aphasia.—Loss or defect of power of speech or writing. This may be of two kinds: (1) Sensory, when there is inability to remember or to comprehend words; and (2) Motor, when there is inability to articulate words.

Asexualization.—See Surgical Sterilization.

Ateleiosis.—A condition resembling continued youth.

Backwardness.—A condition in which mental development is retarded through disease, sense-deprivation, or some other adverse condition; if suitable treatment can be adopted the child improves and becomes mentally normal.

Biochemistry.—The chemistry of living tissue.

Biometry.—A term applied to the study of Heredity by statistical methods.

Bulimia.—Insatiable desire for food.

Cerebral Diplegia.—One of the special types of mental deficiency, where there is accompanying physical deformity. See Chap. VI.

Cerebrum and Cerebellum.—The upper larger portion of the brain and the under smaller portion respectively.

The cerebrum is the most important part, and the cerebellum has to do with balancing and co-ordination. The cortex cerebri is the external layer of the cerebrum.

Chromatin.—The granular deeply staining part of a cell-nucleus. Chromosomes are the rod-shaped bodies formed by the chromatin when cell-division is about to take place.

Cirrhosis.—Liver disease often due to prolonged taking of alcohol in excess.

Cortex.—See Cerebrum.

Craniectomy.—The operation of partial excision of the bones of the skull to allow of their opening out if necessary.

Cretinism.—A condition identical with myxœdema, due to absence of the thyroid gland in the neck. See Chapter VI.

Cyrtometer.—A leaden instrument for taking contours.

Cytology.—The branch of science treating of cells.

Deaf-mutism.—A condition of being both deaf and dumb. It may be congenital in origin, but is more commonly due to deafness from disease in early infancy or early childhood.

Diplegia.—Paralysis on both sides of the body.

- Diplococcus Intracellularis*.—A germ which causes meningitis.
- Encephalitis*.—Inflammation of the brain substance.
- Enuresis*.—Incontinence of urine, which is most commonly nocturnal though it may be diurnal as well.
- Epicanthus*.—A projection of a fold of skin over the inner canthus of the eye.
- Epilepsy*.—A disease characterised by convulsions which are accompanied with loss of consciousness. There are two forms: (1) Grand Mal or Major Epilepsy, in which the fits are marked and of considerable duration; and (2) Petit Mal or Minor Epilepsy, in which the fits are slight and sometimes barely noticeable. In true epilepsy the brain does not show any actual signs of disease, but in other forms there may be meningitis or scar-tissue in the brain, and then the fits are generally worse and do not react to treatment as readily as do true epileptic fits. Epileptic fits may be a cause of incontinence of urine or fæces.
- Eugenics*.—The study of agencies which are under social control and which may improve or impair the racial qualities of future generations either physically or mentally.
- Feeble-mindedness*.—The highest grade of Mental Deficiency.
- Fertilization*.—The impregnation of the ovum with the spermatozoon.
- Follicular Tonsillitis*.—An inflammation of the tonsils, which may spread from one child to another and is not diphtheritic in nature.
- Fontanelle*.—The gaps left between the bones of the skull in early life. These are closed by union of the bones, and the largest, the anterior, does not close until about eighteen months.
- Gastric*.—Relating to the stomach.
- Genetous*.—A term used in connection with mental defect and signifying that that defect is inherited.
- Gestation*.—Pregnancy.
- Hæmoptysis*.—Hæmorrhage or bleeding from the lungs, a symptom of consumption.
- Hemiplegia*.—Paralysis or weakness of one side of the body, often due to an effusion of blood on to the brain on the opposite side to that which is paralysed.
- Hydrocephalus*.—"Water on the brain." Fluid collects inside the skull and compresses the brain. The condition may be congenital or the result of meningitis. See Chapter VI.
- Hypotonia*.—Laxity or want of tone as applied to muscles or ligaments.
- Idiocy*.—The lowest grade of Mental Deficiency.
- Idiots Savants*.—Mentally deficient persons who are exceptionally gifted in one especial faculty.
- Imbecility*.—The medium grade of Mental Deficiency.
- Immunity*.—The state of being immune or exempt from a disease. Immunity may be (1) inherited and innate or (2) acquired as the result of an attack of the

- disease. (An attack of Scarlet Fever confers immunity to future attacks.)
- Incubation Period.*—The period between infection and the first appearance of symptoms.
- Insanity.*—Disorder of the mental faculties developing at some period of life.
- Labials.*—Consonants pronounced by the lips.
- Lalling.*—Defective articulation of the consonants.
- Larynx and Laryngeal.*—The larynx is the upper and expanded part of the wind-pipe, and contains the vocal cords.
- Linguals.*—Consonants pronounced by the aid of the tongue.
- Lobule.*—The fleshy dependent part of the ear.
- Lunatic.*—One who has become insane.
- Malaise.*—Indisposition.
- Melancholia.*—A form of insanity, characterised by extreme mental depression.
- Mendelism.*—Mendel's theory of heredity, embracing the idea of unit characters and of dominance and latency of these.
- Meningitis.*—Inflammation of the membrane surrounding the brain. It may follow pneumonia, tuberculosis, ear disease, syphilis, or infection with meningococcus.
- Mental Deficiency.*—A term synonymous with amentia, signifying imperfect development of the mental faculties and due to an incomplete and irregular development of the nerve cells in the brain.
- Microcephaly.*—Mental deficiency accompanied by a very small brain and head. See Chapter VI.
- Miliary Tuberculosis.*—Tuberculosis generalised and spreading all over the body by the blood stream.
- Modifications.*—Variations acquired during the lifetime of the individual.
- Mongolism.*—A special type of Mental Deficiency, so-called because cases belonging to it resemble the Mongolian race in features.
- Moron.*—A term used in America to designate the highest grade of mental defectives, i.e., the feeble-minded.
- Morphological.*—Having to do with the structure and form of organisms.
- Mutation.*—A process by which new parts arise in an individual by a sudden variation. See page 164.
- Myædema.*—See Cretinism.
- Natal.*—Having to do with birth.
- Natural Criminals (Moral Defectives).*—Persons who, though usually of good mental powers, have some innate defect that makes them liable to various forms of wrongdoing. Training cannot eradicate this defect.
- Natural Selection.*—One of the great theories of heredity. See page 164.
- Nerve Cell, Neuroglia, Neuron.*—The brain is made up of nerve cells embedded in and supported by the neuroglia. The nerve cells are the essential part of the brain, and send out processes by which they communicate

- with the various parts of the brain and body. The main branch of each nerve cell forms a neuron. Nerve cells may be motor, causing movement, or sensory, *i.e.*, connected with sensation and mental processes.
- Neuropathic.**—Relating to or affected with nervous disease.
- Neuropathic Diathesis.**—Constitutional predisposition to nervous disease.
- Neuropathic Inheritance.**—Inherited predisposition to nervous disease.
- Neurosis.**—A nervous disease in which, as in Hysteria, there is no actual visible alteration in the nervous system.
- Nucleus.**—The spherical body within a cell; it takes an essential part in reproduction.
- Nurture.**—Nourishment and care which often enable helpless and weakly individuals to survive.
- Nystagmus.**—Continuous trembling movement of the eyeball, especially evident in looking to the side.
- Occipital.**—Pertaining to the back of the head.
- Ovum.** The female reproductive cell.
- Oxycephaly** ("Steeple Skull").—A condition in which the skull is very high and the frontal and occipital bones sloping away to a cone-like top. Often the eyes are very prominent in this condition.
- Palpebral.**—Relating to the eyelid.
- Parietal.**—Pertaining to the side of the head.
- Parotid Gland.**—One of the glands supplying saliva and situated just behind the angle of the lower jaw. This gland is inflamed and swollen in Mumps.
- Parrot-Speech.**—The senseless repetition of sentences or words heard.
- Pathology.**—The study of diseased organs.
- Pediculi.**—Lice on the head; they lay eggs as nits on the hair and these hatch out at intervals. Oil of Sassafras is the best remedy for the condition.
- Placenta.**—The fleshy mass, which forms the after-birth, and acts as a medium between mother and child whilst the child is in utero.
- Plasm, Protoplasm.**—There are two plasms, the germinal or reproductive, and the somatic or tissue building. See page 161.
- Phthisis.**—A wasting away. Phthisis is now used to designate tuberculosis of the lungs.
- Pica.**—The habit of eating dirty and unnatural things.
- Pinna.**—The external ear developed from six parts—the helix, crus helices, antihelix, tragus, anti-tragus, and lobule. See Plate IV.
- Pituitary Body.**—A small part of the brain under the cerebrum.
- Progeria.**—A condition resembling premature old age.
- Prognathism.**—Projection of the jaw.
- Prognosis.**—Prediction of progress or termination.
- Protoplasm.**—The viscid matter composing a living cell.

Pseudo-hypertrophic Muscular Paralysis.—A progressive disease of the muscles leading to complete paralysis and death. There is a deceptive increase in size of the muscles at first, and the calves of the leg show this the most.

Pulmonary.—Referring to the lungs.

Quarantine.—The period during which the child, who has been exposed to infection, may develop the disease and therefore should be kept from contact with other children, who have not been exposed to infection.

Regression.—The tendency to return towards mediocrity. Filial regression is the general tendency to return to mediocrity shown by the children of gifted parents.

Reversion.—A condition in which individuals exhibit ancestral traits, which their immediate parents did not possess.

Rickets.—A disease of infancy and early childhood, caused by bad food and bad surroundings. It leads to anæmia and bony deformities and often causes backwardness.

Scabies.—A skin disease due to the itch mite, which most commonly lodges in the skin between the knuckles. Sulphur ointment is the best remedy.

Sclerosis.—Thickening and contraction as a result of scar tissue.

Segregation.—The separation of any class of individuals from the remainder of the

community. Also used to denote the process by which characters are sifted or bred out.

Sense-deprivation.—Deafness or blindness or similar conditions caused by the loss of a sense, usually caused by disease.

Spasticity.—A weakness or paralysis of the limbs characterised by stiffness and jerkiness and contractions.

Spermatozoon.—The male reproductive cell.

Sports.—See mutation.

Sterilization Surgical.—An operation which renders procreation impossible.

Stigmata of Degeneration.—Physical or mental defects exhibited by persons of the neuropathic type.

Strabismus.—Squint.

Synostosis.—A joining of bones.

Thyroid Gland.—A gland that is situated at the junction of the neck with the front of the chest; it is absent in Cretinism.

Tragus.—The projecting part of the external ear in front of the opening.

Tuberculosis.—A disease otherwise known as consumption, which is due to a germ and may affect any part of the body. The germ may spread because it is coughed up and, after the sputum has dried, blown about, or because it is present in meat or milk or other foods.

Variations.—A term used in dealing with heredity to denote the way in which offspring differ from their parents.

INDEX

A

ABERDEEN, Reports on, 65.
Abnormal Conditions of Mother, 189; of foetus, 189.
Abnormalities, gross, 173; nervous, 184.
Aboriginal, 176.
Abscess, 189.
Abstract Ideas, 73 87.
Accidental Feeble-mindedness, 12, 55. (See *Acquired*).
Accommodation for Mental Defectives, 46; insufficient, 4.
Acne, 121.
Acquired Characters not transmitted, 162; causes, 189-196; factors, 189-196; table of, 189; feeble-mindedness, 55, 109.
Acts, Education, 4, 5, 6; and Reports, 281; Inebriates, 18; Idiots, 1, 21; Lunacy, 1, 24; Mental Deficiency, 23, 24, 27; Elementary Education, 5, 23.
Addresses of Associations, 268; of Societies, 268.
Adenoids, 150.
Adenoma Sebaceum, 68.
Adherent Epicanthic Folds, 62.
Admission to Institutions, 27, 143; to Schools, 115, 208, 209.
Adoption by Guardians, 38.
Adults, defective, 40; supervision, 45.

After-care, Associations, 32; in Birmingham, 199; Committees, 36; Measures, 44.
Ages of Parents, effect of, 102, 179, 187, 192; on admission, 27 *et seq.*; on discharge, 8, for training, 52.
Alcohol, 18; family history of, 116; as inherited cause, 179; effect on tainted stock, 18, 183; avoid in diet, 210; during pregnancy, 184; and illegitimacy, 18.
Alcoholic cirrhotic disease, 183.
Alcoholism, history of, 119; also, 182, 189; definition, 182.
Alderley Edge, 244.
Allbutt, Sir Clifford, 12.
Allen, A. A., 16.
Alphabet, physiological, 94, 250.
Ament, definition of, 10. (See also *Mental Defectives*).
Amentia, 12. (See *Mental Deficiency*).
American Institutions, 9, 117; methods, 42; States, efforts, 181.
Anæmia, 185, 195.
Ancestral Inheritance, 166.
Animals, liking for, 87; imitate, 105; mentally deficient, 176.
Ante-natal life, 189; acquired factors, 189.
Antero-posterior diameter, 61.
Anti-helix, 61.

- Antitragus, 61.
 Apathy of brain, 73, 100.
 Aphasia, 283.
 Apparatus, hearing, sight, touch, 70, 71, 89; of speech, 90.
 Appearance, general, 123, 126, 141.
 Appendices, 207-282.
 Approved Homes and Certified Houses, 42, 259.
 Aprons, 216, 225.
 Arc of skull, 247.
 Areas of brain, 72. (See Diagram VI.)
 Arithmetic, 86.
 Articles, list of, 275.
 Asexualisation, 203.
 Ascertainment of cases, 49.
 Ashby, Dr. Henry, 7, 12, 16, 58, 88, 193, 244.
 Asphyxia neonatorum, 192.
 Associations, addresses of, 268; Central, 33; for After-care, 32; voluntary, 33, 36; of Education Committees, 33; of Poor Law Unions, 33.
 Association paths, in brain, 70; paths, 88; testing of, 124; development of, 167 *et seq.*; fibres, 77, 78, 171; and ideation, 77.
 Asylums, 2, 3; idiot, 2; Star-cross, 3; Earlswood, 3; Royal Albert, 3; Colchester, 3; Commissions report on object of, 2, 3; returns from, 19; list of, 259 *et seq.*; Boards Metropolitan and Lancashire, 33.
 Asymmetry of skull, 58, 121.
 Ateleiosis, 114.
 Athetosis, 111.
 Attendants, at meals, 213; concerned with the care of Mental Defectives, 34; outdoor, 234; men, 233, 234, 243.
 Attention, 71, 73, 119, 123, 126, 142; Individual, 232; Natural or spontaneous, 73; Voluntary or established, 73.
 Auditory sensations, 77; paths, 77; area, 90.
 Authorities, Local, 23, 24 *et seq.*, 50; Central, 23; Judicial, 51; Duties, 48. Education, 4, 28.
 Average mean, 164.
- ## B
- BABBLING, 92, 124.
 Backward Children, 28, 115.
 Backwardness, 125, 126; Differential diagnosis of, 125, 126; Cases of, 126.
 Balance, 68; Defects of, 123.
 Ball games, 239.
 Ballantyne, Dr., 167, 168, 175, 180.
 Barr, Dr., 135, 136, 183.
 Basion, 61.
 Bath, Marquis of, 8.
 Bathing, 153; Method of, 209.
 Baths, 209; temperature of, 209; frequency of, 220; rooms, 219.
 Beach, Dr., 183.
 Beans and Boston receipt, 211.
 Bearing, general, 123.
 Bed, 150, 217; wetting, 150, 217 (see Enuresis); clothes, not over head, 219; making of, 218.
 Behaviour, 141.
 Belladonna, 150.
 Benington, Miss Helen, 19.
 Bibliography, 275.
 Binet and Simon, Tests, 124, 130, 131, 233, 253.
 Biochemistry, 233.
 Biometry, 166.
 Biparental reproduction, 161.
 Birdwitted, 73.
 Birmingham, after-care, 199; proportion of feeble-minded,

- 14; Education Committee, 9.
- Birth, injuries at, 118; difficulties at, 118, 193; (see also Natal).
- Bitragal Arc, 61; diameter, 61, 247.
- Bladder, defective control over, 68, 84, 150.
- Blankets, 217.
- Blind, 21, 29.
- Blindness, 70, 112, 194. (See Eye).
- Blood, influences through mother, 167; course in foetus, 167, 169; vessels, rupture of, 170; effect of poorness of, 195.
- Blood relations, 179; and marriage, 202.
- Board test, 124, 180.
- Board of Control, 23, 35; of Education, 28, 149, and regulations, 227; address, 269; Board of Guardians, 38.
- Boarding out, 199.
- Body, cells, 161; plasm, 161; external paths, 71.
- Boils, 160; and persistence of, 160. (See Furunculosis).
- Bolsters, 217.
- Bolt food, 212.
- Bolton, Dr., 171.
- Bolton Education Committee, 12.
- Bolton sheeting, 217.
- Books, List of, 275.
- Boots, 197, 225; and lacing, 230.
- Borax in epilepsy, 152.
- Borderline cases, 115.
- Boston receipt, 211.
- Bourneville, Dr., 183.
- Bowels, control of, 68, 84, 150, 219.
- Brackenbury, Dr. H. B., 50.
- Brain, conditions in feeble-mindedness, 101, 103, 171; ways into, 90; ways out of, 91; development, 70, 169; formation of, 169; compared to community, 172; nervous control of, 89; disease of, 170, 189, 195, and as a cause, 195; at birth, 169; weight of, 169; injuries of, 170; nerve cells of, 170; intellectual faculties of, 171; of lunatics, 171; and under-development, 171; and innate power to develop, 171; of embryo, 170. (See also 167-177).
- Brain cells, arrangement of, 171; pigmentation of, 171; gaps in, 172; immaturity of, 172.
- Branthwaite, Dr., 18.
- Breakages, 227.
- Breakfast, 211.
- Breeding out of taint, 203; of characters, 165.
- Brentry Reformatory, 9. (See Fleck, Dr.)
- Bricks, 228.
- British Association for the Advancement of Science, 5; Journal of Inebriety, 182; Medical Association, 5.
- Bromides, 152.
- Broncho-pneumonia, 105.
- Brook House, 244.
- Broth, 211.
- Brushes, care of, 221.
- Bruit of heart, 104.
- Building plans of Wyatt House, 270 and 271.
- Bulimia, 141.
- Burden, Rev. H. N., 9.
- Burgwin, Mrs., 6.
- Byrne, Sir W., 9, 33.

C

- CALDECOTT, Dr., 19, 136.
- Calculation, 86; power of, 119, 127.
- Callipers, 247.

- Callousness, 76.
 Cancer, 188.
 Capacity, cranial, 59.
 Caps, 215.
 Capes, 215.
 Carbolic Acid, 156.
 Cardiac dullness, 104.
 Care, of animals, 146; as pre-
 ventative, 186; and control,
 1, 7, 20, 34, 39; and treat-
 ment, 145-161; (see also
 Lifelong and Permanent);
 of eyes, ears, teeth, nose,
 throat, 149.
 Carriage, general, 68, 119; de-
 fects of, 123.
 Cases, of speech defect, 253;
 of backwardness, 126, 128,
 132; of microcephaly, 106;
 of hysteria, 152; of Mon-
 gols, 101; of paralytic, 111;
 of cretinism, 139; in in-
 fancy, 128; of mental defect
 in early life, 133; of pica,
 141; of eating from dust-
 bin, 84; attracted by jing-
 ling coins, 73; primary and
 secondary, 55; accidental,
 55; acquired, 55; case
 sheets, 116.
 Cataract, 104.
 Causation, 9, 12, 173, 178-196;
 and heredity, 13; of speech
 defect, 90.
 Causes, post-natal, 193; in-
 herited, 178-188; acquired,
 189-196. (See Factors).
 Cavendish, Lady Frederick, 7.
 Cavities in brain, 118.
 Cells, reproduction and here-
 dity, 161-166.
 Census, 186.
 Central, authority, 23; Associa-
 tion, 33; (see Fox, Miss
 E.); powers in brain, 70,
 90; and speech, 91; central
 defects, 91.
 Cerebral, Diplegic, 99, 109;
 Hemiplegic, 99, 109, 139.
 Cerebrum, Cerebellum, 283.
 Certificates and Forms, 255-
 259.
 Certificate, Government, 255.
 Certified Houses and Approved
 Homes, 41, 42, 259.
 Certifying Officers, courses open
 to, 199.
 Chadwick-Healey, C. E. H.,
 K.C., 9.
 Character, Lifelong, 11.
 Characteristics, general, 64;
 physical, 55-69; classifica-
 tion, 55; table of, 57; of
 infectious diseases, 156.
 Charity Organisation Society,
 5, 33; Charitable Institu-
 tions, 10.
 Chickenpox, 160.
 Chilblains, 65, 153.
 Children, number of mentally
 defective, 14; of two feeble-
 minded parents, 175.
 Chloride of Lime, 156.
 Chocolate, 212.
 Chromatin, Chromosomes, 283.
 Chronicle, Medical, 247.
 Church Penitentiary Associa-
 tion, 19.
 Circulation, 65, 153.
 Circumference of Head, 58,
 118; normal, 58; smallness
 of, 58.
 Cirrhosis of the liver, 183.
 Clare, Sir Harcourt, 46, 50.
 Clark, 185, 186.
 Classification of Mental Defec-
 tives, 10; of cases, 55.
 Cleanliness, 84, 142.
 Cleft palate, 64, 65.
 Cloak-rooms, 155.
 Clogs, 215.
 Closets. (See Offices).
 Clothes, 196; quantity of, 65;
 tightness of, 215; care of,
 215, 216, 236; lice in, 209;
 on admission, 209; reserve
 of, 225; making of, 196.
 Clouston, Sir T., 16, 19.
 Clumsiness, 237.
 Coats, over, 215.

- Cocoa, 211.
 Cod Liver Oil, 214.
 Coffee, 210.
 Cold, bad effect on, 214.
 Colchester Asylum, 3.
 Cole, Mr., 47.
 Collars, 216.
 Colonies, 43, 45; list of, 259 *et seq.*; best for life-long care, 199.
 Colours, 122, 251; Colour-blindness, 122.
 Combs, care of, 221.
 Commission, Blind and Dumb, report of, 4; Royal, on care and control of Feeble-minded, 1 *et seq.*
 Commissioners, 13, 23. (See Cautation).
 Committee, Joint, of British Medical Association, etc., 5; Local, 23, 50; Departmental, on Defective and Epileptic Children, 6; also, 26.
 Companionship, value of, 232.
 Conception, 161, 178; life history after, 167; inherited causes before, 178.
 Conclusions, as to mental defect, 173; re conditions of brain in feeble-mindedness, 174; as to inherited causes, 188; as to alcoholism during pregnancy, 188; as to acquired causes, 195; as to cause of speech defects, 88.
 Condition of brain in feeble-mindedness, 101, 103, 171.
 Conference. (See Guildhall, 46).
 Congenital, feeble-mindedness, 13; origin, 64; abnormalities, 65; deafness, 70.
 Conjunctiva, 63; Conjunctivitis, 158.
 Consanguinity, 179, 187.
 Conscience, 80.
 Consonants, defective pronunciation of, 89, 92.
 Constipation, 100, 108, 152.
 Consumption, 116. (See Tuberculosis).
 Continuity of germ-plasm, 161, 174.
 Contours of heads, 58.
 Contractures in paralytic cases, 110, 111.
 Control, defective, 68; of bladder and bowels, 68, 84, 150; of muscles, 123; age at which acquired, 118.
 Convalescence, 156.
 Conversation at meals, 212.
 Convulsions, of brain, 102; also 108, 116; (Inward C. 116); also 189; description of, 193. (See Epilepsy).
 Cooking, need of good, 212.
 Co-ordination, 92.
 Corduroy, 215.
 Corsets, 216.
 Cortex, 102.
 Cost, of scheme for care, 45; of maintenance, 45.
 County Councils Association, 33.
 Coupland, Dr., 47.
 Courses, for putting under care, 199; open to parents, 199.
 Cowper, quotation from, 87.
 Cranial capacity, 59. (See Skull).
 Craniectomy, 108.
 Creasol, 156.
 Cretin, 55-57, 99, 189, 193; (see Myxoedema); Prognosis, 100; cases of, 189; treatment, 100 (see Plate VII). (See also Types).
 Crime and Mental Defect, 16.
 Criminal, responsibility, 17; propensities, 80, 197.
 Cruelty, 75.
 Crus helicus, 61.
 Cupboard for hearing, smell and touch tests, 229.
 Cups, 155, 226.
 Cyrtometer, 283.

Cures, 30.
Cytology, 283.

D

DADO, 216.
Daily routine, 272.
Dangerous cases, 199.
Darenth Colony, 8.
Darwin, theory of natural selection, 164; tubercle, 62.
Day, rooms, furniture and floor of, 224; special schools, 143.
Deaf, 29; (and Local Education Authorities). (See Elementary Education Act).
Mutism, 119; tests of, 122, 123. Deafness, 67, 112; and Meningitis, 112; congenital, 70; and mental defect, 120, 129, 194; and tests, 130.
Dean, Dr. H. R., 185.
Death, incidence, 184; rates, 184. (See Prognosis).
Debilitating factors, 179.
Decay of nerve-cells, 171.
Decency, 219. (See Modesty).
Decorations of rooms, 227.
Defective, heads, 58; children, 6, 8; Defectives, 30, 40; Double Defectives, 84.
Definitions of mental defectives, 11. Also in Glossary.
Degeneration, 63; of tissues, 68; early, 68; stigma of, 63. (See Decay).
Degradation if not cared for, 204. (See Vice).
Degrading influence on other persons, 137.
Degree of Mental Deficiency. (See Norsworthy, 79).
Dements, 10. (See also Lunatic). Definition, 10.
Dendy, Miss Mary, 7, 13, 16, 85, 48; Appendix I. 207-246.
Dental arch, 121.

Dentition, fits at, 68.
Departments in Institutions, 43.
Detailed examination of head, 246-250.
Determinants, 165; dominant and latent, 165.
Development, 167; inherited power of, 65; period of, for walking and talking, 120; failure of, 174; of associations in brain, 119; retarded mental, 11, 177; incompleteness of, 174, 177.
Diagnosis, 115-133; Apparatus necessary for, 116, 117; differential between feeble-mindedness and backwardness, 125 and 126.
Diagram of Life Periods, 168.
Diameters of skull, 247.
Diathesis. (See Neuropathic, 121).
Dickenson, W. H., M.P. 9.
Diet. (See Food, Feeding, Medical Officer, Doctor).
Dietary, 211.
Differential diagnosis of feeble-mindedness and backwardness, 125.
Digestion, 146, 151; Digestive System, 136.
Dining, rooms, floor of, 224; furniture of, 223.
Dinner, 211.
Diphtheria, 157.
Diplegia, 109. (See Cerebral).
Diplococcus intracellularis, 112.
Discipline, 81; in dormitories, 217. (See Management).
Disease, infectious, 156-160; natural selection to, 164, 176, 285; vitiating, 179; maternal, during pregnancy, 189; of brain as cause, 189.
Disinfection, 155; Disinfectants, 156.
Dispensary, 241.
Disposition, unsocial, 240.
Distance, feeble-minded at a, 74.

Doctor. (See Medical Officer, 29).
 Donkin, Dr. H. B., M.D., 9.
 Dormitories, 216; utensils in, 217; windows in, 217; ventilation in, 217; discipline, 217.
 Douching, 153.
 Douglas, Dr., 20.
 Down, Dr. Langdon, 100.
 Dress, for boys, 214; for girls, 216; care of, 215 and 216; ability to, 126.
 Drill, 111, 148.
 Drink and Mental Defect, 18.
 Drunkard, 197.
 Ductless glands, 103.
 Dull child, 115. (See Backward).
 Dunlop, Dr. J. C., M.D., 9.

E

EAR, 61, 77, 83; external, 61, 121; disease, 83; testing of, 122; defects of external, 61, 121; care of, 149; sensation, 77; imperfect development of hearing, 176; see also, 176.
 Earliest born in family, 181.
 Earlswood Asylum, 3, 19.
 Early age, control at, 198.
 Earning capacity, 199.
 Eating, 145, 212.
 Edinburgh, size of families in, reports on, 65; Royal E. Asylum, 19.
 Educable Children, 26.
 Education, Act and Mental Defect, 4 (see Acts); importance of, 203; Authorities, 4, 23; of public opinion, 199.
 Elderton, Miss, 183.
 Election to Asylums, 199.
 Elementary Education Act, 5, 6, 23, 27 *et seq.*

Embryo, 178, 190; causes acting on, 178; weakened, 190; diagram, 168.
 Emissive paths of brain, 70.
 Employment Bureau, 37.
 Enamel ware, 266.
 Encephalitis, 99, 112, 172, 189; as a cause of mental deficiency, 173, 195.
 Encouragement to work, 236, 242.
 Enunciation, 232.
 Enuresis, 150, 218. (See Bed-wetting).
 Environment and heredity, 165; and mutation, 165.
 Epicanthic Folds, 103, 121.
 Epicanthus, 62, 63. (See Eye Deformities).
 Epilepsy, 68, 179, 189, 193; family history of, 119, 151, 180; effect on prognosis, 136, 140; meningitis and, 140; isolated fits, 68, 153; as cause of neuropathic inheritance, 179; tendency to transmission, 179; and feeble-mindedness, 140; and treatment, 152; and falls, 151, 194; and hysteria, 151, 180. (See Fits).
 Eruptions, 121.
 Errands, 123, 131.
 Eugenics, 183, 203; laboratory memoir, 191.
 Evolution and natural selection, 183.
 Examination, of cases for care, 53; apparatus needed for, 116, 117; method of, 117, 118.
 Experimental, evidence and alcohol, 191.
 Exposure of body, 219.
 Expression, 67, 123; defective, 67.
 External auditory meatus, 58; ear, 61; paths of the body, 71; stimuli, 127.
 Eye, 62; deformities connected

with, 62; rolling of, 104;
care of, 149. (See Sight).
(See Blindness).
Eyelids, imperfect development
of, 175.

F

Factors, inherited, 173-188; ac-
quired, 189-196; causative,
179.

Faecal incontinence, 219. (See
Bowels)

Faculties, 83.

Failure of development, 174.

Fall (see Injury); with epilep-
tic fit, 151; and foetus, 190.

Family history, 116, 118, 119;
diagram of, 187; on form,
118; see also 126, 180.

Families, size of, containing
feeble-minded children, 201;
prolificness of, 201.

Farm work, 87, 197.

Fatigue, 235.

Fatness in girls, 65. (See
Thyroid).

Fatuous sounds, 128.

Features, 99.

Feeble-mindedness, definition,
1, 11; ratio in U.S.A., 177;
spontaneous, 14; origin, 13;
irregularity of 242; en-
hanced by other factors,
185; proportion, 14; in-
nate, 13; see also, 1, 8.
(See Mental Deficiency).
Cases as illustrations, 126;
not a reversion, 176; feeble-
minded children, 6; defini-
tion, 11; see also 115, 116
et seq. Feeble-minded
parents, child of two, 161,
175. Other feeble-minded
children in same family,
201. Feeble-minded persons,
11, 14.

Feeders, 213.

Feeding self, 142. (See Diet).

Felt for beds, 217.

Fernald, Dr., 43, 76, 109, 124,
135, 204, 228.

Fertility of mentally deficient,
18, 14.

Fertilization, 284.

Fevers, 112.

Finance, 44, 46, 47.

Finger, incurved little, 64,
104, 121; imperfect devel-
opment, 177. See also 65.

Fires, 241; guards, 223, 226;
in hospital, 241; exits in
case of, 241.

First born, 181.

Fits, 68, 151. (See Epileptic).
Hysterical, 68; and menin-
gitis, 173.

Flannel shirts, 214.

Flannelette not good, 214.

Fleck, Dr., 18.

Fleming, B., 19.

Foetal heart, 169.

Foetus, 179; period, 190; death
of in syphilis, 185; injury
and disease of, 185; and
shock, 190.

Follicular tonsillitis, 158.

Fontanelle, 106.

Food, 210; bolting, 212.

Forks, 212.

Form for admission, 255-259;
at Lancaster, 20.

Formalin, 156.

Formation, period of, 167.

Formative processes, 169, 175;
stigmata, 175; degeneration,
175.

Fox, Miss E., 49, 33.

Fraenum linguae, 92. (See
Tongue-tie).

Fresh air, 155.

Fright during pregnancy, 190.

Frocks, 216.

Frontal deficiency, 58, 67;
association fibres, 77, 78,
171.

Fruit, 211.

Fry, Sir Edward, 16.

Function, delayed development of, 128.

Furniture, 223.

Furunculosis, 160. (See Boils).

Fusion of germ plasms, 162.

G

GAIT, 119.

Galton, 166.

Games, 65, 119, 289; organised value of, 232.

Gardens, 289; as a cure for temper, 284.

Gardening, 87.

Garments, 214, 216.

Gastric, 284.

Genetius, 55.

Genital organs in Mongols, 104.

German measles, 157.

Germ-plasm, 161, 162, 174; inherited factors affecting, 162, 179; action of syphilis on, 185; and deformities, 162; and acquired characters 162; toxic influences on, 164; and defect, 196.

Gestation period, 179.

Gifts, 224.

Glossary, 283-288.

Goddard, Dr., 87, 162, 163.

Gordon, Dr., 185.

Gowers, Dr., 180.

Grace, 212.

Grading of mental defect, 43, 57.

Grayson, Miss, 7.

Greed, 212.

Greene, H. D., M.D., 9.

Grey matter of brain, 112.

Growth, 161, 167; inherited power of, 65.

Guardians, 4, 34, 38; courses open to, 199; Board of, 21.

Guardianship, of private individuals, 38; in chosen cases, 199.

Guildhall Conference, 46.

Guthrie, Dr., 97.

H

HABITS, 84, 182; and prognosis, 142.

Habitual offenders, 82.

Hæmoptysis, 284.

Hæmorrhage, 109.

Hair, cutting of, 209; care of, 220.

Hand movements, memory of, 90.

Happiness, 195.

Hardening measures, 153.

Hare-lip, 65.

Hay, Professor, 64.

Head, defects of, 58; circumference of, 58, 247, 248; care of, 218, 220; contour measurements of, 58, 64, 247; in hydrocephalus, 58; detailed examination of, 246-250; asymmetry, 248; in microcephalus, 196; arcs of, 247; measurements of, 248; as stigmata, 248.

Health, after asexualisation, 203.

Hearing, apparatus, 70; testing, 119, 228; powers, 122; (see Ear); cupboard, 229.

Heart, disease, 65, 153; organic, 65; congenital, 104; incomplete condition of, 102; and circulation, 153.

Heights, 64, 105, 118, 121.

Helix, 61.

Heller, Dr., 86.

Hemiatrophy, 173.

Hemiplegia, 99, 109, 284; prognosis in, 139; and potato peeler, 226; case, 226.

Heredity, 13, 161-166, 174; and causation, 13; taint in first-born, 181; text-books, list of, 280.

History, on form, 118; personal, 120; and prematurity, 193; and difficulties at birth, 193 (See Family).

Hitchen, Miss Scott's Home, 7.

- Hobhouse, C. E. H., M.P., 9.
 Holland, Mr J. L., 50.
 Home, sickness, 80; treatment at, 146; results, 199.
 Homes, Rescue, 19; (see Newark); Inebriate, 10; Approved, 41 and 42.
 Horses, 233.
 Hospitals, 45; rooms, 240, 241; definition, 11; Pendlebury Children's, 56.
 House work, 245.
 Howe, Dr., 20.
 Huey, Dr., and mentality, 253. (See Binet-Simon).
 Hunter, Dr., 181.
 Hurle, Mrs, 46; and duties, 48.
 Hutchison, Dr., 202.
 Hydrocephalics, 55-57; (see Types); 99, 109, 113, 195; treatment, 113; (see Plate IX).
 Hygiene of schools, 148; mental, 43.
 Hypotonia of muscles, 102.
 Hysteria, 151, 179; case of, 152; history of, 178, 180.
 Hysterical fits, 68, 151; treatment, 152.
- I
- IDEATION, 77.
 Idiot, definition, 1, 11; village, 1; asylums, 2 and 10; savants, 74; lower than native, 176; also, 8, 10, 14, 74, 115, 127. Idiots Act, 1, 21.
 Ignorance of inheritance, 203.
 Illegitimacy, and mental defect, 16, 18, 48, 187.
 Imagination, 78.
 Imbecile, definition, 1, 11, 14, 74, 115, 127. (See Moral Imbecile, 11). (See Glossary, 284).
 Imitation, 142; in Mongols, 105; in Microcephalics, 108.
 Immaturity of nerve cells, 171.
 Immunity, 284; transmission of, to disease, 162.
 Impetigo, 160.
 Impressions in brain, 77; interpretation of, 92.
 Inborn variations, 163.
 Incontinence, 218.
 Incubation, 156.
 Incurvation of finger joint, 64.
 Individual teaching, 148, 232.
 Industrial school, 10; and system, 17.
 Inebriates, 18; and Act, 18; Reformatory, Brentry, 9.
 Inebriety, British Journal of, 182; Homes, 10.
 Inequality of mental defect, 248.
 Infectious fevers, as causes, 189, 194; case caused by, 195; description, 156 *et seq.*; diseases, 154.
 Infancy, mental defect in, 112; Mongolism, 104; cases of in, 101, 102, 103.
 Inflammatory, 55-57; lesions, 109. (See Meningitic and Encephalitic).
 Inflammation at birth, 109; after birth, 170.
 Influenza, 158.
 Ingenuity in games, 232.
 Inheritance, ancestral, 166; neuropathic, 12; of mental instability, 182; by transmission, 13.
 Inherited nature of mental defect, 57; factors, 178-188; table of, 179; power of development, 65; power of growth, 65.
 Injury, 109; to foetus, 179, 189, 192, 194; to brain, 170; to child at birth, 120.
 Innate, influences, 167; power in nerve cells, 191, 175.
 Insanity, 119, 179, 180; family history of, 119, 180. (See Lunacy).

Inspection of school children, 29.
 Institutions, list of, in England and Wales, 259-264; in Scotland, 264; in Ireland, 264; in America, 265-268; and care, 19; a necessity, 14; Royal Albert, 47; residential, 35.
 Intelligent backward children, 114.
 International Congress of Hygiene and Demography, 5.
 Interpretation deficient, of sensations, 93.
 Intra-uterine life, 109.
 Iowa, 177.
 Ireland, 20. (See Howe, 264).
 Ireland, Dr., 55. (See Gene-tous). Also, 97, 134, 186.
 Iron, 160.
 Irregularity, of development, 242; of nerve cells in mental defect, 171; of mental powers, 172; of skull, 59.
 Isolation, for swearing, 210; for nervousness and temper, 240; rooms, 240.
 Itard, 1, 20.

J

JACKETS, 216.
 Jam, 210, 211.
 Jaw, deformities, 63, 103; protruding, 64, 104.
 Jerseys, 214.
 Judicial Authorities, 40, 41, 51; (See Petition to),
 Juvenile General Paralysis, 114.

K

KALLIKAK family, 162, 163, 186.
 Keller, Miss Helen, 112, 194.
 Kerr, Dr., 31.
 Kidney trouble, 218.
 Kindergarten work, 229.

Kitchens, 225.
 Kneelers, 225.
 Knives, 212.
 Knitting, 230; with twigs, 240.
 Knowle Asylum, 3.

L

LABIALS, 94, 251; Labio-dentals, 94.
 Labour, 189, 192.
 Lace making, 236.
 Lacing boots, 230.
 Lalling, 94, 122; conclusions as to, 94.
 Lancashire and Cheshire Society, for permanent care, 7, 27; Asylums Board, 23.
 Lancaster, 20.
 Langdon Down, Dr., 100.
 Language, bad. (See Swearing, 210).
 Lankester, Sir E. Ray, 13.
 Lapage, Dr., and definition of Feeble-mindedness, 242.
 Larynx, 89.
 Latency of taint, 203.
 Laundry work, 87.
 Lavatory, 219.
 Law relating to mentally defective, 21; legal books, 281; legislation, 14.
 Legge, Mr, 16.
 Lesions, 109, 192.
 Lessons, variety in, 232.
 Levy, Mr Ben, 244.
 Lewis, David, Trustees, 244.
 Lewis, Dr. Bevan, 12.
 Lice, 158, 209, 220.
 Life, history after conception, 167.
 Lifelong care, essential, 197; and parents, to ensure it, 198; character, 11. (See Permanent).
 Lincoln, proportion of feeble-minded in, 15.
 Linguals, 94; Linguo-dentals, 94; Linguo-palatals, 94.

- Linking paths, 89. (See Associations).
 Linoleum, 217.
 Lip, movement, 92; memory of, 90; reading, 129.
 List of Homes, 259 *et seq.*
 Liver disease in alcoholism, 183. (See Cirrhosis).
 Liverpool, Miss Grayson's Home, 7.
 Lobule, 61.
 Local, Government Board, 19, 21; Education Authorities, 21. (See Blind and Deaf).
 Loch, C. S., 9.
 Lodging-houses, 10.
 London, County Council Schools, 5; School Board, 31. see also, 24.
 Lotion, antiseptic, 116.
 Lunatic, 1, 10, 14; Asylums, 40; definition, 1, 10. (See Dement).
 Lunacy Act, 1, 21; laws, 9. (See Insanity).
 Lunch, 211.
 Lungs, 89.
 Lysol, 156.
- M**
- MACKENZIE, Dr., 64.
 Macramé work, 230.
 Magdalen Hospital School, 8.
 Maintenance, 25, 51; at Colonies, 45.
 Make-believe, 240.
 Malaise, 156.
 Management of feeble-minded, 207. (See Discipline).
 Manchester, proportion of feeble-minded in, 14, 183; Children's Hospital, Pendlebury, 56; family history of 1,000 cases, 180; size of families, 201, 202; Special Schools, 56; School Board, 8.
 Mangle and lazy worker, 236.
 Mannerisms, 123.
 Manners, 212.
 Manor House, 244.
 Manual tasks, 74; work, 86; skill, 119.
 Marching, 148.
 Markings on skull, 246.
 Marriage of blood relations, 201, 205; of feeble-minded, 20.
 Massage, 111.
 Masturbation, 142.
 Mats, 197; making of, 236.
 Maternal blood, 169.
 Matron, 208, 245.
 Mattresses, 217; and felt in place of, 217. See also, 150, Beds.
 McIlraith, Dr., 65, 193, 246.
 Mean, average, 164.
 Measure, 116.
 Measles, 157; as a cause, 112; case caused by, 195.
 Meat food, 210.
 Medical, Officer, 25 *et seq.*; and diet, 214; re fitness for schools, 29, 114; investigators, 9; charities, 10; certificates, 41.
 Medico-Psychological Association, 33.
 Melancholia, 77.
 Melland, Dr., 15.
 Memory, 71, 74, 119, 123, 126; storing up of movement, 90; defects of, 91; testing, 123.
 Mendel, 165; Mendelism, 165; Ratios, 166.
 Meningitic type, 99, 112.
 Meningitis, with fits, 173; as a cause, 173, 176, 189, 195; and prognosis, 136; definition, 172, 173.
 Mental, capacity, 78; characteristics, 70-88, 103; degeneration, 48; inertia, 73; weakness, 18.
 Mental, deficiency, 179; Act, 1, 10, 23, 33, 53; (see Amentia and Feeble-mindedness); classification, 10; defini-

- tions, 10 and 11; defect, family history of, 119, 180; in early life, 127; a variation, 174; and animals, 146; in animals, 176; instability, inherited, 182; shock as cause, 189, 190, 195; limitations, 186; as cause of neuropathic inheritance, 57; hygiene, 43; stigmata, 141; stress during pregnancy, 119; faculties, 79.
- Mentality, 253.
- Menstruation, 67.
- Mercier, Dr., 13.
- Mercury, 165.
- Methods, 23-54; also 9, American, 42.
- Metropolitan, Asylums Board, 3.
- Microcephaly, -lic, 55-57, 106, 138, 176; (see Types); and garden, 78; family of, 106, 107; prognosis in, 108; pathology, 107; causation, 106; spasticity, 107; characteristics, 108; treatment, 108.
- Midland Counties Asylum, 3; Midland County Voluntary Association, 37.
- Miliary tuberculosis, 105.
- Milk, in diet, 211.
- Mimicry, 105.
- Minced meat, 211.
- Mind, development of, 70.
- Ministry of Health, 25.
- Mirror writing, 86.
- Miscellaneous defects, 67.
- Mitchell, Dr., 292.
- Mixture of stocks, 162.
- M'Kenna, The Right Hon. R., 20.
- Moberly, Gen. F. J., 5.
- Models, 228; model arrangements, 28, 29.
- Modesty, 80, 142. (See Dececy).
- Modifications, 285.
- Mogridge, 176.
- Mongols, 55-57, 176 (see Types); and ear in, 62, 102; parents of, 101, 187; thyroid gland in, 103; characteristics, 101, 103; cataract in, 104; causation, 101; operations on, 150; ages of parents, 102; other children in family containing, 101; and game with string, 75; twins, 202; definition, 101; pathology, 102; prognosis, 105, 106, 138.
- Moral defectives, definition, 11; imbeciles, 11, 14, 19; prognosis, 143; see also, 70, 78, 80, 82, 114. (See Natural Criminals). (See Plate IX).
- Morally incapable, 17.
- Moron, 87.
- Morphological, 285.
- Mortality, 15, 13, 134.
- Mott, Dr., 16, 18, 183.
- Mouth, 88. (See Oral).
- Movements, aimless, 128.
- Mumps, 157. (See Parotid).
- Murdoch, Dr., 106.
- Muscles, control over, 68, 138; sensations of, 89. See also 92. Hypotonia of, 102.
- Muscular sensations, 71, 91.
- Music, 105, 148.
- Mutation, 164, 165; and environment, 165; and natural selection, 165; and Mongolism, 176; and Microcephalics, 176.
- Myxoedema, 99; congenital. (See Cretinism).

N

- NAPKINS at table, 213.
- Nasion, 61.
- Natal, 189, 285; period, 189; causes, 192; injuries, 192. (See Birth).
- Natality of mentally defective, 15.
- National Association for Care of Feeble-minded, 7, 34.

- Native race, 176.
 Natural criminals, 82. (See Moral Defectives).
 Natural selection, 164, 165, 176, 285.
 Nature and Nurture, 164.
 Neatness, 84.
 Needham, Dr. F., M.D., 9.
 Neglect and results, 132.
 Nerve, cells of brain, 78, 170; paths, 111; centres, 111; in mental defect, 170; number determined early, 175; control over, 68; influences, 68.
 Nervousness, 120, 241.
 Nervous system, 179, 186.
 Neuroglia, 170.
 Neuron, 108, 109, 286.
 Neuropathic, inheritance, 57, 179; diathesis, 121; taints, 102; persons and alcohol, 182, 183.
 Neurosis; 179; family history of, 180.
 Newark State Custodial Home, 44.
 Newman, Sir George, 28, 37.
 Newton, Mr., 6.
 Norbury Farm, 244.
 Norsworthy, 78.
 Norway, 177.
 Nose, in Mongols, 103; care of, 149.
 Nucleus, 286.
 Numerals, 251.
 Nurture, 164, 286.
 Nurse, 208, 241.
 Nystagmus, 63, 104.
- O
- OBESITY, 65.
 Observation, Homes, 34; tests, 132.
 Obstinacy, 75.
 Occipital, 58; defects, 58; external protuberance of, 247.
 Occupation, need for and makes happier, 195, 198; useful, 230; key-note of success, 207.
 Odour, 68.
 Offices, situation of, 222; in hospital, 222; use of, 222, cleanliness in, 222; paper for, 222.
 Oil, Cod Liver, 214.
 Operations, 108, 150.
 Opportunities for mental development, 120, 126.
 Oral, 88. (See Mouth).
 Orange, H. W., 6.
 Order of birth of parents, 181.
 Organic heart disease, 65.
 Origin, 14; developmental, 57; congenital, 64.
 Ormond, Dr., 104.
 Outdoor relief, 10.
 Outside world, avoidance of, 241.
 Overcoats, 214.
 Overeating, 211.
 Overwork, 232.
 Ovum, 161.
 Oxycephaly, 114.
- P
- PALATE, defects of, 63, 104, 121; cleft, 64; imperfect development of, 121; muscles of, 92; see also 89.
 Palpebral, 104.
 Pain, insensitiveness to, 67; sensitiveness to, 76, 209; (see Senses).
 Paralysis, of arm improved by exercise, 139, 226; pseudo-hypertrophic, 68; juvenile general, 114.
 Paralytic types, 55-57, 99, 109; causation, 110; skull deformities in, 110; illustrative cases, 111.
 Parents, child of two feeble-minded, 161, 175; reports, 119, 125; control, 39; age of, 187; marriage of, 179;

- relationship of, 119, 179; responsibility for education of children, 198; courses open to, 199.
- Parietal, 247, 286.
- Parke's Museum, 5.
- Parotid. (See Mumps).
- Parrot speech, 123.
- Parry, Alderman, 46.
- Passions, 233.
- Paths of the brain, 70, 71.
- Pathology, and heredity, 174; of mental defect, 170; of Mongolism, 102; of microcephaly, 107; definition, 286; and evidence, 174.
- Patterns, 230.
- Peas, dwarf, and tall, 166.
- Pearce, Dr., 65, 105.
- Pearson, Professor Karl, 166, 183.
- Peculiarities, mental, 70.
- Pediculosis, 159. (See Vermin on Head).
- Pedigrees, 181.
- Periodicals, 282.
- Permanent Care, results of, 27; legality of, 28; essential, 197, 205; in America, 42; how to obtain, 199; suggestions for, 203, 205, 243. (See Lifelong Care).
- Perverts, 203.
- Peterson, Dr., 58, 63, 190.
- Petitions to Judicial Authorities, 40.
- Petticoats, 216.
- Phillips, Mr H., 244.
- Phlegmatic temperament, 76.
- Phrases of speech, 251.
- Phthisis, 136. (See Tuberculosis).
- Physical, defects, 57; stigmata, 118, 140; deformity, 192; characteristics, 64, 103, 121; injury during pregnancy, 189, 190; drill, 111, 148; exercise, 65.
- Physically defective, schools for the, 5.
- Physique, 65.
- Pica, 141.
- Pictures in rooms, 217.
- Pigs, 245.
- Pinafores, 216.
- Pinna, 61, 286.
- Pinsent, Mrs Hume, 9, 37.
- Pituitary body in Mongols, 103, 286.
- Plaiting cloths, 230.
- Plans of Wyatt House, 270, 271.
- Plasm, germ-, 161, 162, 174. (See Somatic and Protoplasm).
- Plates, 226.
- Playgrounds in Special Schools, 148.
- Plica semilunaris, 63.
- Ploughing, 76.
- Pneumococcal meningitis, 112.
- Pneumonia, 105, 136.
- Pockets in clothes, 215.
- Poisons, 181.
- Police, 10.
- Pooley, Mr, 6.
- Poor Law, relief and mental defect, 40; Guardians, 3, 23, 24; Authorities, 3, 23, 25, 27, 200; Institutions, 10; Board of, 26.
- Porencephaly, 173.
- Post-natal, period, 189, 193; inflammation, 170; causes, 189, 193.
- Postbasic meningitis, 112.
- Potassium iodide, 111.
- Potatoes, 211; peeling as an occupation, 226, 237; and work for hemiplegic case (potato peeler), 226.
- Potts, Dr., 5, 191. (See Shuttleworth).
- Poultry, 245.
- Powers of the brain, 70.
- Prayers, 232.
- Pregnancy, alcoholism during, 184; health during, 118, 119; and syphilis, 185.
- Prematurity as cause, 193.
- Present methods of dealing with

- mental defect, 23-54; conditions, care under, 199; methods of relief, 38.
- Pressure, 192.
- Preventative measures, 197-205; asexualization as a, 203; summary as to, 205.
- Primary cases, 12, 55, 179; cause of, 179.
- Principles, of treatment, 197-205; of Royal Commission's recommendations, 199.
- Prisons, 10; prisoners, 17.
- Private individuals and guardians, 38.
- Probability of improvement, 137.
- Progeria, 114.
- Prognathism, 64, 141.
- Prognosis, 134-144; in moral defectives, 143; in cretinism, 100; in Mongolism, 134; in microcephaly, 108.
- Progress at school, 127.
- Progressive variations, 163; mutations, 165.
- Prolonged labour as a cause, 188, 192.
- Proportion of feeble-minded to general population, 14.
- Prostitute, 197.
- Protection, of unfit, 52. (See Board of Control, 28).
- Protoplasm, 286.
- Pseudo-hypertrophic paralysis, 68.
- Psychological Laboratory, 117.
- Puberty, fits at, 68.
- Public Authorities, 34; Elementary Schools, 10.
- Publications, Acts, etc., 281, 282.
- Pudding, 213.
- Pulmonary, 105.
- Punishment, 81.
- Puzzles, 231.
- Quilt, 217.
- R**
- RACE, native, 176.
- Radius of skull, 247.
- Radnor, Earl of, 8.
- Rankine, Dr., 105.
- Reading, 231; power of, 119, 127; area in brain, 72. (See Diagram VI). Inability to, 85.
- Reasoning, powers, 124; teaching of, 230.
- Rebuke, 77.
- Reception paths, 70, 88; and speech, 91.
- Receptive power of brain, 70.
- Records, the taking of, 116; points to be noted, 118.
- Reformatory, 10, 17.
- Registrar-General on size of families, 201.
- Registration of mental defect, need of system, 186.
- Regressive variation, 287.
- Regularity of meals, 212.
- Regulations and rules, 21.
- Regulation, of mental defect, book on, 149; of Special Schools, 149; of Board of Education, 227.
- Reid, Dr. Archdall, 13.
- Reports, and Acts, 268, 287; on mental and physical condition of childhood, 6.
- Reproduction, 161, 166, 174; bi-parental, 161.
- Rescue Homes. (See York).
- Reserve, 79.
- Resistance to disease, 134.
- Responsibility, 242; as an aid to treatment, 144.
- Retrogressive variation, 163; mutation, 165.
- Reversion, 164; variations, 164.
- Rheumatism, 158.
- Richards, Mr, 246.
- Richardson, Dr., 175.
- Q**
- QUARANTINE, 156.

Rickets, 83, 113; head, 59; as a cause, 195.
 Ringworm, 158.
 Rivalry, 232.
 Rocking-horse, 223.
 Ronuk, 216.
 Rooms, dining and day, 223, 224; school, 227; manual, 228.
 Routine of day, 272.
 Royal, Albert Asylum, 3, 47, 147, 181; Schools for the Deaf, 129; Edinburgh Asylum, 19; Royal Commission, on the inherited nature of feeble-mindedness, 180; on care and control of the feeble-minded, 8; on alcohol as a cause, 180; on Blind, Deaf, and Dumb, 4.
 Rug making, 230.
 Rules. (See Regulations).
 Ruspini, Mrs., 19.

S

SALVATION Army, 33.
 Sandlebridge, 8, 27, 35, 51, 65, 68, 82, 135, 154; account of, 243; small amount of tuberculosis at, 184; feeding at, 213; tooth brushes at, 220.
 Sanem (consanguinité), 187.
 Sanguine temperament, 76.
 Sanitary Authorities, 10.
 Sassafras, Oil of, 160.
 Savage, Dr., 16.
 Scabies, 159.
 Scalding, 209.
 Scarlet fever, as a cause, 112; description, 195.
 School, rooms, 227; standards at, 119, 125; decorations in, 227; residential, 26; progress at, and prognosis, 143; special, 31, 114, 129; training, 51; book of regulations of, 149; leaving, 235; residential and value

of, 234; list of certified, 41 and 42. (See Special Schools). (See Industrial School System).
 Sclerosis of brain, 112, 171, 287.
 Scotland, alcohol at periods in, 186.
 Scott, Dr., 16.
 Scott, Miss, 7.
 Scott, Mr Leslie, 47, 49.
 Secondary, causes of feeble-mindedness, 55, 179; caused by, 179; mental defect, 173, 177, 179; case of, 55.
 Segregation, 287.
 Selective action of toxin, 164, 190.
 Selfconsciousness, 67.
 Sensation, defective, 91; of speech, 93, 122.
 Sense, deprivation, 112, 189, 194; development of, 236; -room, 228. (See Pain).
 Sensitiveness, 76.
 Sequin, 1.
 Serving of meals, 212, 213.
 Sewing, 230.
 Sexes, division of, 243.
 Sexual perverts, 203.
 Shadwell, Mr, 17.
 Shame, 79.
 Shann, Sir T. T., 246.
 Sharpe, Rev. F. W., 6.
 Shaw, Dr., 109.
 Sherlock, 86, 172.
 Shirts, 214.
 Shock, mental, 195; as a cause, 189, 190, 195.
 Shoes, 215.
 Shortcomings, aware of, 124.
 Shuttleworth, Dr., 4, 5, 6, 58, 102, 134, 183, 202.
 Shyness, 79, 120.
 Sick-room, 240.
 Sight, 70, 119, 228; tested, 122. (See Visual).
 Simon, 124, 180, 233, 253.
 Simpleness of feeble-minded children, 197.
 Sit up, age at which, 127.

U

- Size of families containing feeble-minded children, 201.
- Skin, 121; disease, 68.
- Skinner, Miss, 19.
- Skipping, 148.
- Skull, 58; bones of, 247; (see Cranial); defects, 58, 103, 114; arc of, 247.
- Slavering, 69, 111; in paralytics, 111.
- Slippers, making for Matron, 239.
- Smallness of skull, 58, 102.
- Smell, 228, 229; and substances for testing, 229.
- Smith, Professor W., 6.
- Socially dangerous, 17.
- Societies for feeble-minded, addresses of, 268.
- Sociological factors, 179, 187.
- Socks, 215.
- Solitary life bad, 201.
- Sore throat, 158.
- Somatic plasm, 161.
- Sorting classes, 127.
- Spade, 235.
- Spasticity, 107.
- Special, Committees, 5; schools, 4, 5, 7, 31, 143, 147; and control at leaving, 198; types, 99-114.
- Speech, palate and effect on, 64; mechanism, 89; development of power of, 83; area in brain, 72; (see Diagram VI.); defects of, 83, 89-98, 122, 231; conclusions as to nature of defects, 88; causation of defects, 83, 90, 93; testing of, 93, 126, 250; teaching of, 90; cases illustrating, 253; detailed examination, 250 and 251; methods of, 250; effect on diagnosis, 119; effect on prognosis, 119.
- Spina Bifida, 113.
- Spontaneous feeble-mindedness, 181.
- Sports, 164.
- Squint, 63, 104.
- Stacey, Miss, 7.
- Stammering, 120 and 97.
- Standard at school for normal child, 125.
- Starcross Western Counties Asylum, 3.
- State Institutions, 41.
- Stationery Office, 149.
- Statistics, 1-22, 55, 192 and 193; re Mongols, 102; of alcoholism, 183.
- Stays, 216.
- Steeple skull, 114.
- Sterilization, surgical, 203. (See Asexualisation).
- Stewart, G., M.P., 20.
- Stigmata of degeneration, 57, 100, 121, 175.
- Still, Dr., 56, 104, 134.
- Store-rooms, 225.
- Stowell, Dr., 135, 136.
- Strabismus, 63.
- Stress, mental, 190.
- Stuttering, 97.
- Substances, 229.
- Suet, 211.
- Suggestions for permanent care, 199.
- Suicide, 77, 188.
- Sulphur candle, 156.
- Summary as to preventative and social measures, 205.
- Sunday suits, 215.
- Sunlight, 155.
- Sunstroke, 189, 195.
- Supernumerary auricles, 65.
- Supervision, of mental defectives, 34; need for, 198.
- Surgical, measures, 14; sterilization, 203.
- Survival of mental defectives, 201.
- Sutures, 106.
- Swearing, 210.
- Sweets, 212.
- Synostosis, 287.
- Syphilis, 119, 184, 189; Wassermann's reaction in, 185; congenital, as a cause, 195.

T

TABLECLOTHS, 213; waiting at, 213; manners, 212.
 Tactile, 91. (See Touch).
 Taint, in stocks, 180, 181; transmitted, 179, 181; unbalanced, 164; neuropathic, 102; alcoholism, 18, 183.
 Talking at meals, 212; absence of, 232; development of power of, 82, 108, 127; delayed, 68, 82, 127; average ages of, 83, 188.
 Taps, kind of, 221.
 Taste, 228.
 Taylor, Dr, 65.
 Tea, 211; as beverage, 210.
 Teachers, 31, 34, 80, 125, 198; report, 119.
 Teaching, 5, 26 *et seq.*
 Teeth, 89; care of, 149; cleaning of, 220.
 Temperament, 76, 119, 142.
 Temperature, 236.
 Tempers, control of, 233; hysterical, 236; rest cure for, 241.
 Temporary mental affections, 11; insanity, 12.
 Temptations, 198.
 Tests, of hearing, 122; by observation, 132.
 Text-books, list of, 275-288.
 Thomas, Dr, 90.
 Throat, care of, 149; muscles of, 92.
 Thumb, Tom, 114.
 Thyroid gland, 99, 139, 189; extract, 65, 153; in Mongols, 103; in Cretins, 99.
 Ties, 215.
 Tissues, 68.
 Toffee, 212.
 Tom Thumb. (See Ateleiosis).
 Tongue, 64, 89, 92, 108; clumsiness and deficient sensation of, 91; depressor, 116; -tie, 92.

Tonsils, 150; Tonsilitis, 158.
 Tooth-brushes, care of, 220.
 Touch, testing cupboard, 228, 229; bag, 229; see also 71. (See Tactile).
 Towels, care of, 221.
 Townsend, Miss, 6.
 Toxic influences of germ-plasm, 164, 190.
 Toys, 217, 240, 209, 224.
 Tracings, of heads, 59, 61; Plate III., 60.
 Tragus, 61, 247.
 Training, of feeble-minded, 3, 207; Homes, 10.
 Transmission, 13, 179.
 Treatment, and care, 144-160; at home, 146; of feeble-minded children, 116, 145-160; of Mental Defectives, 34, 116; of Cretinism, 100; of Mongols, 106; of Microcephaly, 108; of Paralytics, 111; of Hydrocephaly, 113; principles of, 198; grounds for, 17. (See also Appendix I.).
 Tredgold, Dr A. F., 12, 15, 16, 47, 134, 169, 172, 180, 183, 184, 202.
 Troup, Mr., 17.
 Trouser-linings, 215.
 Tubercles of ear, 61. (See Darwin).
 Tuberculosis, 184; statistics of family history, 119, 183; during pregnancy, 179, 189, 192; at institutions, 154; in Mongols, 195. (See Consumption). (See Phthisis).
 Tuberculous disease, 83, 136.
 Tumour, 189.
 Types, 99-115; 55, 138; moral defective, 70; melancholic, 77.

U

UNEVENNESS of mental development, 145, 172.

Unselfishness, 79.
 Unsocial disposition, 240.
 Unsound mind, definition, 10.
 Unit characters, 165. (See Mendel).
 United States of America, provision in, 44.
 Utensils, 226; in hospital, 241.

V

VACANCY, mental, 147.
 Vanity, 80.
 Variations, 163; inborn, 163; progressive, 163, 174; retrogressive, 163, 174; acquired, 163 (modifications); germinal, 12; reversive, 164, 174; feeble-mindedness a, 175; and mutation, 174; ratio of, 12.
 Vegetables, 211.
 Ventilation, 155, 217.
 Ventricles of brain, 118.
 Vermin in head, 159, 209. (See Pediculosis).
 Vests, 215, 216.
 Vice, 204. (See degradation).
 Visitors, 34, 50; and pediculi, 220.
 Visual sensations, 77; area, 90. (See Sight); image, 77.
 Vitiating habits or disease, 179, 182; conclusions as to, 184.
 Vocal cords, 89.
 Voluntary, Agencies, 7; Societies, 22, 23, 34; Associations, 33.

W

WAGE-EARNING, 20; power, 199.
 Waistcoats, 215.
 Walker, Mr James, 246.
 Walking, development of, 68, 82, 108, 127; average ages, 83, 138.
 Want of control, 68.
 Wardrobe, 224.

Wardship, 200.
 Warford, Great, 244; Hall, 244.
 Warner, Dr. F., 4, 5, 63.
 Wassermann Reaction, 185.
 Waste of food, 213, 225.
 Wasting disease, 83.
 Water, supply of, 221; closets. (See Offices).
 Watering plants in rain, 78.
 Waugh, Mr., 47.
 Waverley, Institution, 43, 135, 154, 213; bathrooms and lavatories, 219; sense-room, 228.
 Ways, into brain, 90; out of brain, 91.
 Weak-minded, 17; weakness (mental), 18.
 Weaving, 236.
 Wegener, 86.
 Weights and heights, 64, 105, 118, 121.
 Weismann's doctrine, 161.
 Whistle, 74.
 Wilhete, Dr., 173.
 Wilkinson, Mr. Frederick, 12.
 Will, power, 74, 91, 97; defects of, 91; case illustrating defective, 75; record of, 119; in paralytics, 111.
 Wilmarth, Dr., 173.
 Windows, 217.
 Winter shirts, 214.
 Women, feeble-minded, means of helping, 7.
 Word, blindness and deafness, 90; storing up of, 89; for testing speech, 251.
 Work, 234; suitable for feeble-minded, 234, 238; for low-grade cases, 43; at potato machine, 236; change to, from school, 235; variations in, 238; importance of, 49; value of, 233; choice of, 235, 238; and money result of, 238; men and girls at, 238; at Sandlebridge, 245.

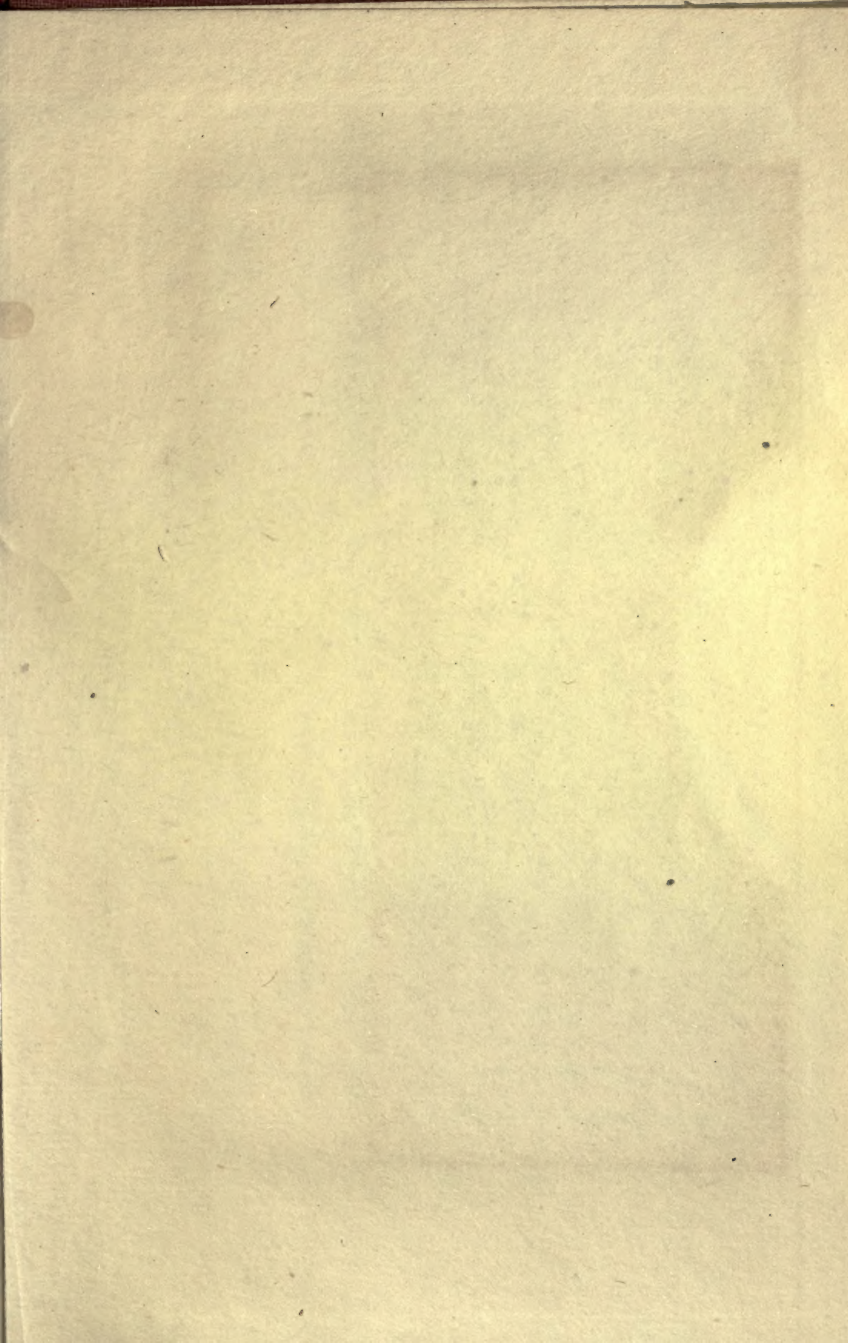
- "Workers and wastrels," 43.
- Workshop, 197.
- Writing, 231; power of, 119, 127; area in brain, 72 (diagram VI.); inability, 85 (see Mirror-); and intercommunication by, 231.
- Wyatt, C. H., 8, 245; C. H., jun., 245.
- Wyatt House, plans of, 270, 271.
- Wyllie, Dr., 91; Physiological Alphabet, 94 *et seq.*

Y

- York, Rescue Homes, 19; Union Infirmary, 19.
- Youth, continued. (See Ateliosis). (See Tom Thumb).







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